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Laurena Glovers

U. S. DEPARTMENT OF AGRICULTURE.
DIVISION OF ENTOMOLOGY.
BULLETIN No. 18.

THE LIFE

AND

ENTOMOLOGICAL WORK

OF THE LATE

TOWNEND GLOVER,

FIRST ENTOMOLOGIST OF THE U. S. DEPARTMENT OF AGRICULTURE.

PREPARED, UNDER DIRECTION OF THE ENTOMOLOGIST,

BY

CHARLES RICHARDS DODGE.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1888.

LETTER OF SUBMITTAL.

U. S. Department of Agriculture,
Division of Entomology,
Washington, D. C., December 5, 1887.

Sir: I have the honor to submit for publication Bulletin No. 18 of this division, being an account of the life and work of the late Townend Glover, my predecessor as United States Entomologist, prepared by Charles Richards Dodge. I had for some time thought of preparing a full bibliographical list of Glover's writings with a general index thereto, because of the usefulness of such a publication in the work of the Division. Such a compilation would naturally lead to some brief statement of Mr. Glover's character, and especially of his official life, and I would here acknowledge my indebtedness to Mr. Glover's widow and to his cousins in London for their kindness in furnishing information. Mr. Dodge has fortunately been willing to relieve me of a task which he is far more able to accomplish, not only because of the data he has collected, but by virtue of his long and intimate relations, both private and official, with Mr. Glover, who could certainly have had no more appreciative biographer. I trust that the bulletin may prove acceptable and useful to all interested in economic entomology.

Respectfully,

C. V. Riley,
Entomologist.

Hon. Norman J. Colman,
Commissioner of Agriculture.

LETTER OF TRANSMITTAL.

BOSTON, MASS., *December* 1, 1887.

DEAR SIR: In undertaking to tell the story of Mr. Glover's life, I feel that, while it is a pleasant privilege to be able to review such interesting reminiscences of our long acquaintance as may bear upon the man and his work, the account must be necessarily imperfect and incomplete in portions from lack of important data.

The facts regarding his boyhood life are gleaned from your visits to, and correspondence with, Mr. C. G. Oates and Mr. Abram Clapham, of London, England—Mr. Oates's mother and Mr. Clapham being Mr. Glover's first cousins, the nearest English relatives who were living at the time,—and also from early personal diaries and family papers, loaned me by Mrs. Hopper.

Mrs. Glover has rendered me valuable aid by furnishing important information regarding dates, and by placing at my disposal a considerable amount of documentary evidence relating to the middle period of his life, which, with a few early letters and my own recollection of the man, and of many conversations with him touching upon his personal history, are the principal materials that have been available. I am also indebted to you for portions of the bibliography of his entomological writings, prepared by Mr. B. P. Mann, and for your kind assistance in other directions.

As the subject of this sketch was a man of great individuality, I have thought it best to present the main facts of his life in such manner as will more fully bring out his personal attributes and peculiarities, and leave the treatment of his entomological and museum work, or that which bears directly on his connection with the Department of Agriculture, to special chapters. Some of the extracts or incidents may seem trivial, but the make-up of the man embodies such diversity of talent, and at the same time presents such originality, that it has seemed best to use that material which will best show him forth as he was.

I am yours, respectfully,

CHARLES RICHARDS DODGE.

Prof. CHARLES V. RILEY,
Entomologist, U. S. Department of Agriculture.

THE LIFE OF TOWNEND GLOVER.

Prof. Townend Glover, the first entomologist of the United States Department of Agriculture, was born at Rio de Janeiro, February 20, 1813. His paternal grandfather was Mr. Samuel Glover, a merchant of Leeds, England. His father, Mr. Henry Glover, an only son (though there were several daughters) married Miss Mary Townend, of Leaming Lane, Yorkshire, and was engaged in commercial pursuits at Rio de Janeiro when Townend Glover was born. His mother dying, after a few days illness, when he was about six weeks old, he was sent to his relatives in England; and, upon the death of his father, which occurred some six years later, he was taken in charge of by his paternal grandmother and maiden aunt in Leeds. Here his education began, as he was placed in a private school of high reputation, of which the Rev. Mr. Holmes was preceptor.

By nature the boy Townend was of a reserved disposition, making few close friendships outside the immediate circle of his own family. He was, nevertheless, abounding in high animal spirits, possessed of a strong sense of fun and humor, which always made him an agreeable and entertaining companion to those with whom he was wont to associate. In his studies at school he showed a fair degree of aptness, and being endowed with good abilities he is said to have acquitted himself with unfailing credit, and without any special effort on his part.

Even in boyhood his love for drawing showed itself, chiefly in caricature of the people about him, admirably done at that early period, it is said, his efforts sometimes bringing the youthful artist into trouble.

The beginning of his love for entomology dates back to these early school-boy days, at which time, in company with the one congenial and intimate friend of his boyhood, a lad with similar tastes, he was already interested in making a collection of insects, which, it is said, he prepared and mounted with skill. As a boy he was very clever with his hands in anything requiring care and nicety, and was singularly quick and apt. And not only was he drawn towards the insect world, but natural history in all its branches, and even botany, had an early and peculiar fascination for him. Upon leaving school, we are told that young Glover was prevailed upon by his friends to enter the warehouse of a firm of Leeds merchants, with a view to acquiring a knowledge of the woolen goods

trade. Mr. Glover alludes to this in his diary (March 16, 1834) in characteristic language, as follows:

> Mr. C. this evening gave me my indentures of apprenticesbip to Thompson, Scarf & Co., by which I find that £300 of my money is gone forever, merely to learn the "art and mystery" of a stuff merchant, a mystery I hope never to practice.

What other plans for his future may have been made for him, or were entertained by himself at that time, are not known, though his aunt was once very desirious that he should study for the ministry. In after-life he frequently referred to this with satirical allusions to having been cut out for the clergy; and in a letter written to friends in England many years after coming to America it is amusing to find a joking reference to his clerical education. In his commercial life, with its exacting routine, though utterly at variance with every instinct of his nature, he fulfilled the duties which the position entailed upon him conscientiously and with assiduity as long as he continued in it. The early discipline did him no harm, if, indeed, it did not fit him for the life of most exacting routine of his later years, to which, though self-imposed, he gave the best years of his existence.

But there suddenly came an end to his commercial education, for at the age of twenty-one, or as soon as he had reached his majority, he shook himself free at once and forever from the trammels of business life.

His father had bequeathed him an ample fortune, but, as Mr. Glover once gave the story to the writer, through the perfidy of his father's partners in business, or others associated with him in Rio, the fortune had been dissipated, save a portion which, unknown to Mr. Glover, until he had reached his majority, was reserved in trust by relatives in England. Mr. Glover not only thought that he had been cheated out of his patrimony, but on at least one occasion has intimated the suspicion that his father's death had occurred from other than natural causes. Some weeks after arriving at his majority he received the small fortune held for him by relatives in Leeds, and having meantime fitted himself for going abroad by the study of German, he began active preparations for his journey. To one who has known Mr. Glover intimately in later life his diary kept at this period is most interesting, as showing, even at the age of twenty-one, so many of those traits of character or individualisms, if the term may be used, which so strongly marked the mature man. Indifference to country or home, distrust of mankind and of the motives of people about him, self-reliance and a wish to be his own master, and at the same time frequent evidences of the good influences by which he had been surrounded in the family circle in which he was reared, appear on many pages. Some are so striking I can not forbear making a few brief extracts.

During a short visit to Burneston, in April, 1834, he wrote:

> Sauntered about all day, reading Tam O'Shanter; begin to think a country life would be very tiresome. Could manage to spend some months very pleasantly in the

country, provided I had books, paint box, horse, gun, flute, etc., not forgetting a pleasant friend, without which a man might be tempted to shoot or drown himself for very ennui.

The entry for the next day is confined to three short lines:

What with teasing the servant about her lover, plaguing the cat, and gossiping with the villagers, managed with difficulty to live the day out.

Evidence of a restless nature, abhorring idleness.

Having decided to indulge his taste for artist life and at the same time see something of the world, on the 19th of April, 1834, he quitted Leeds and started for Munich, with a view of putting himself upon a systematic course of study in different branches of painting. Regarding his leave-taking he says:

Miss G. [his aunt] cried most prodigiously, as if I should never return home—home did I say? I forgot that I have no home and that for the future I must consider the world as my home, or, rather, make a home wherever I am. I leave some few people in Leeds whom I shall regret to lose, but on the whole I like my prospects very much.

He spent nearly a month en route to Munich, stopping at Hamburg, Hanover, Gotha, and many other places, and arriving on the 14th of May. Here he began study at once, though at first he confined himself to the study of the German language under one Dr. Caflish, and it was not until a month later that he had made arrangements with the artist Mattenheimer, "the inspector of the gallery," to give him lessons in fruit and flower painting in oil.

Under date of June 19, 1834, he writes:

Took my first lesson in flower drawing and like it very much; he (Mattenheimer) says he sees that I have talent, from my drawings, and that in a little time I shall paint very well—flattery to make me learn—but don't care; if it pleases me I intend to continue it till I paint tolerably.

A week later, this:

For the first time handled palette and brushes and daubed a little in oil painting. Mightily pleased to have advanced so far; don't intend to say anything about it to my friends in Leeds, or they will expect miracles of me.

A few days after this his master has been trying to persuade him to be an artist. "Will not, though, whatever he says," closes the entry.

Regarding his art work at this time it has been said of him that still-life and natural history subjects were his special delight, whether he painted in water colors or oils; and so successful was he in what he undertook in this way that with some who were well acquainted with his work, it was a source of regret that he did not make painting the serious study of his life. Notwithstanding this statement, it is not likely that Mr. Glover would ever have made a great artist in the sense of producing strong, original *pictures*. From a study of examples of his best efforts produced both in Europe and in America (oils and water colors), it is very evident that he was strongest in the direction of illustrative work, or close studies, where great detail and accuracy of delineation were absolutely essential. He was at his best in still-life, therefore, and especially in the painting of fruits, flowers, and the lesser animal life.

A number of his works in oil, which he brought to Washington, were only copies from the productions of his masters or other p inters, and should not be taken as standards of his ability.

His water color paintings of flowers and insects and a few natural history objects, are most exquisite examples of artistic illustration, and are drawn to the life, showing the expenditure of a vast amount of labor and patience, and giving assurance in the artist of a fair eye for color. As a rule they are painted with little attention to modeling, the color being laid on heavily, stippled and frequently lacking in transparency, and without attempt at composition in the sense of making pictures of them. But they are very realistic and sometimes quite decorative. Many of his early drawings of the Florida insects are as exquisitely finished, though with his later originals he took less pains. When Margaret Fuller first saw some of the flower paintings she would hardly believe that they had not been done under the microscope, so delicate was the work. Whether or not his extreme shortsightedness made it difficult for him to paint in any other manner, it is impossible to say, however well adapted to the labors of his after life this special kind of work may have been. He could not have painted broadly had he desired to do so, for his almost microscopic vision saw everything in the minutest detail. This explains, too, why his after engravings of insects, particularly of *larvæ*, lack in action.

After finishing his journeyings in Europe and having turned his back upon Munich, the study of art was still an absorbing interest with him. On his return to England he took up his abode at Leeds for a short time, and, in a room set apart for the purpose of a studio, and surrounded by pets of every conceivable description, he continued to paint with assiduity. And it is pleasant to learn that his love of natural history shared equally with his love of art. Many delightful reminiscences of the young painter-naturalist (who was now about twenty-three years old), are recalled by those who knew him at this time, all indicating the manner of life which he afterwards followed. Mr. Oates thus writes of him in a memorial sent to Professor Riley:

He would sit before his easel with a favorite lizard nestled in his breast, his coat pockets tenanted by snakes, and a blackbird perched upon his shoulder, whilst hanging on the walls of his apartment might be seen some tiny gauze cages, daintily constructed for the reception of tame spiders, which were periodically supplied with flies. There were also in the room a variety of other birds and such quadrupeds as mice, rats, and guinea pigs, all pets in a greater or less degree. Glover's early school friend, previously referred to, still living at Whitby in Yorkshire, particularly recollects visiting him in this apartment on one occasion when he was painting a bunch of grapes, his blackbird as usual upon his shoulder. Glover had just completed the painting of the grapes, when the fancy seized him to add a fly, as though it had alighted on the fruit. This he did, and had scarcely withdrawn his hand from the work, when the blackbird darted from its master's shoulder and pecked lustily at the phantom fly. About this time Glover had begun to give some attention to copper-plate engraving, and also carved in wood. He sustained a great sorrow in the death of a little girl, the child of a first cousin, who was devotedly attached to him and for whose amusement he

never wearied of exerting himself, for his affections once roused were acutely sensitive and tender. Glover was possessed of great physical activity, and though not skilled in horsemanship was fond of riding. On one occasion, it is stated, that whilst riding on a friend's horse, which proved restive, he was thrown violently to the pavement, and his head striking the curbstone, he sustained a fracture of the skull. For some time his life remained in jeopardy, and though to all appearance he ultimately recovered from the effects of the accident, it has been suggested that the injury then received told on him in later years and led to the somewhat premature failure of his powers.

Professor Glover has more than once stated to the writer that the scar upon the side of his head was made by the bursting of a gun barrel and Mrs. Glover verifies the statement. It occurred, too, before he went to Munich, for there is a reference to his fractured skull in his journal. However the injury was inflicted, I can not think the suggestion made above has any weight, as Mr. Glover's peculiar and irregular mode of life in after afters, without recreation, and his prolonge d ill-health for several years in a trying southern climate, were sufficient causes for his breaking down before reaching three score and ten.

Whether or no Mr. Glover returned to Munich again can not be stated from any written records. During a few weeks of his first summer in Germany (1834), he made an extended pedestrian tour through the Tyrol with his German teacher by way of vacation and to learn the language. Some of his pencil sketches made in Tyrol are dated 1836, but as he sailed for America June 24 of that year, he could only have made a flying visit to Germany, if at all. He decided to visit the United States through the representations of some relatives, young men who settled in America about this time, though he did not at first entertain the idea of making it a permanent abiding place. His roving disposition prompting a period of adventure and sight-seeing before settling anywhere, he at first spent his time in travel.

This was a turning point in his life. The fine, open scenery, the lakes and vast rivers of the United States appeared to exercise a powerful influence on his impressionable nature and led to his making it his home. For several years after coming to the New World he roamed at leisure through different parts of the country, and particularly in the South, making New Rochelle his headquarters, for there are records of his having remained in New Rochelle, near New York, at various times during the years 1836 to 1839. He was in New Rochelle August, 1836, and in that month started on a journey through New York State, thence West and South, the close of the year finding him in Louisiana and Texas. In 1837 he was again traveling about through the picturesque portions of New York State, and early in 1838 was once more South, visiting the Carolinas, Georgia, and adjacent States.

Mrs. Glover tells me that he finally settled in New Rochelle in the spring of 1838, and here his dog and gun, or rod and boat, were almost constant companions; his boat, which he built and was very much

attached to, demanding the greater part of his time. When it was launched there were some lines written commencing:

> To Townend we drink, that lad of much fun,
> So deeply in love with his dog and his gun.

A volume might be filled with the stories Mr. Glover has told me of his life at this period. He was "hail fellow, well met," everywhere, having all the friends he desired (sometimes too many, doubtless), and devoting himself to pleasure.

It was during a brief visit to Fishkill that Mr. Glover first met Miss Sarah T. Byrnes, an estimable young lady, and the daughter of Joseph T. Byrnes, a gentleman of prominence, who owned a large estate lying upon the banks of the Hudson. An attachment having sprung up between them, they were married in September, 1840, in New Rochelle, and in the following spring went to live in Fishkill-on-the-Hudson (then known as Fishkill Landing), Mrs. Glover's native place.

During the five years which followed Mr. Glover chiefly interested himself in floriculture, in natural history studies, and taxidermy, a large case of the native birds of Dutchess County, N. Y., shot and prepared by him, still remaining in excellent condition, evidence of his taste and skill in this direction. He also employed a part of his time in art, as Mrs. Glover particularly remembers two large oil paintings, one of fruit, the other of flowers, which were produced at this time, and subsequently presented to relatives in England.

In the spring of 1846, in company with his wife, Mr. Glover visited his relations in England, remaining until fall. Upon his return he went to live upon his own place, which he had purchased from the Byrnes estate, and a more romantic and beautiful spot he could hardly have chosen. Lying upon the crest of a gentle slope, in sight of Storm King, the surrounding country broken into majestic hills and deep vales, at a point where the noble river makes a bend to the left and is joined by the creek which swept at the foot of his garden, the view was one of surpassing loveliness. I first saw it through the yellow haze of a bright October day and while viewing scenes which had been so familiar to him—the orchard that he had planted, the garden plot where he spent so much of his time, and the rocky creek, upon the banks of which he had had so many piscatorial triumphs, for he was an expert disciple of Walton—the wonder came how he could have left it all, and become satisfied with the hum-drum life into which he drifted in later years. In this beautiful place, on his return from England, he began in earnest the life of a country gentleman, busying himself with the planting and care of fruit and ornamental trees, and with his garden, which was noted for its fine flowers and vegetables. He also paid considerable attention to the cultivation of small fruits, all the leading varieties of which were tested by him.

Mr. Glover visited England again in the fall of 1849, and at this time spent some days at Walton Hall, in Wakefield. Mr. Oates states that while staying on one occasion with a cousin at Scarborough, with whom

he was on intimate terms, he chanced to meet Charles Waterton, who was stopping at the same place, and the two cousins subsequently became for a short time the guests of the veteran naturalist at Walton Hall. Upon his visit in 1849, Waterton presented Glover with several of his works, the "Wanderings," now in the possession of Mr. William H. Edwards, containing the naturalist's autograph.

During this period of Mr. Glover's life, that is, the latter part of the forties, he made the acquaintance of Mr. A. J. Downing, and through the intimacy which followed he became deeply interested in pomology, his enthusiasm prompting him to devote himself to it for a time. Then came the desire to do something of practical and lasting value that might be appreciated beyond the narrow limits of the little world in which he moved. The scheme of illustrating American pomology by a series of perfect fac-similes, with special regard to the changes produced by differences of soils and climates, was planned and entered upon. At first he experimented to find the best composition of which to make his models, and practiced with the laying on of color to get the most natural effects. His first efforts are said to have been very crude, but he worked persistently until success was attained, and then he began the collection. Two rooms were set apart for a workshop, materials purchased in quantity, and the work was pushed as rapidly as possible during the fruit season, and continued for several years.

The formation of this collection, without doubt, had more to do with altering the course of his after life than has been supposed, for through it the ten years of rural quiet at Fishkill were followed by a period of roaming again. At various times between 1849 and 1852 his collection of fruits were exhibited at State fairs and elsewhere, a number of cups and medals having been given him as prizes. They were once or twice exhibited in Albany, once in 1851 at the exhibition of the New York State Agricultural Society, and subsequently at a meeting or exhibition of the American Institute in New York, the collection at this time being quite large. Correspondence in my possession shows that in 1852 he arranged for an exhibition in Horticultural Hall, Boston, though I do not know that the fruits were ever exhibited there, though they were exhibited in several other places.

Mr. Glover had now made considerable reputation as a pomologist. He was invited to act as a judge at the New York State and other fairs, and wrote for the American Agriculturist on pomological subjects. A letter from the late Marshall P. Wilder, bearing date November 7, 1851, makes mention of a "beautiful and correct cast of a Louise Bonne de Jersey pear," recently brought to his notice, the letter closing with an offer to send him some specimens of new fruits.

The attention that these models had attracted and the commendations Mr. Glover had received for his collection led him, in the winter of 1853–'54, to take them to Washington for exhibition and possible sale. This was about the time that the new Bureau of Agriculture was established in the United States Patent Office, and Mr. Glover very

soon became connected with it. His commission bears date June 14, 1854, and his appointment was made "for collecting statistics and other information on seeds, fruits, and insects in the United States." A small cabinet was at once begun in the single room then devoted to the Bureau of Agriculture, the fruit models forming no small part of the exhibit.

The collection of fruit models now comprised some 2,000 specimens, the matrices being also preserved and numbered, that duplicates might be made if desired. "It has taken $3,000 in cash and six years of unremitting toil" to produce them, is Mr. Glover's written testimony about this time concerning the collection.

Mr. Glover's name is not mentioned in any of the official reports of the Commissioner of Patents. By inference, however, we know that he held the dual position of entomologist and special agent, his duties necessitating travel upon various missions bearing upon the agricultural interests of the country, through the Southern States mainly, and at one time into South America. Charles Mason was Commissioner of Patents at this time, the chief clerk in charge of the Bureau being D. J. Browne, of New Hampshire.

In 1854 Mr. Glover studied in the field the insects affecting various crops, the summer months being spent in South Carolina investigating the grape insects and the insects injurious to cotton. In 1855 he was ordered to Florida, where he occupied himself during the entire season of five or six months in studying the habits of various insects and in investigations upon the insect enemies of cotton. In a private letter he alludes to this summer having been spent most pleasantly "with alligators, mosquitoes, and red bugs." It may be worthy of note that nearly all the drawings which subsequently appeared in his twenty-two plates of the cotton insects were made at this time in and about Tallahassee, though his field of observation extended from Columbia, S. C., southward. It was in this year, too, that he first met the one congenial friend and companion of his Florida experiences, a worthy gentleman, Mr. Henry Wells, the friendship lasting through life. Mr. Wells was always dignified with the pseudonym "Alligator" to the last of their acquaintance, Mr. Glover's correspondent appellation being "Old June Bug."

The experiences of this season also inspired the Florida litany, which Mr. Glover was want to repeat upon occasions with great satisfaction. He was frequently asked for copies of the lines, and he always returned an emphatic "no," for he never would allow original verse of this description to get out of his possession, at least when he could help it. Here is the litany as jotted down by me during a chance recital not long after a refusal to make a copy of the lines:

> From red-bugs and bed-bugs, from sand-flies and land-flies,
> Mosquitoes, gallinippers, and fleas,
> From hog-ticks and dog-ticks, from hen-lice and men-lice,
> We pray thee, good Lord, give us ease:
> And all the congregation shall *scratch* and say Amen.

In the winter of 1856–'57 he was ordered to British Guiana and Venezuela to take charge of an expedition having for its object the restocking of the Louisiana sugar plantations, the native cane having deteriorated to a degree affecting the sugar interest. An appropriation of $10,000 having been granted for the purpose, the bark *Release*, with a competent crew, was placed at the disposal of the Patent Office, and Mr. Glover, as the Government agent, placed in charge of the expedition. He was in every way

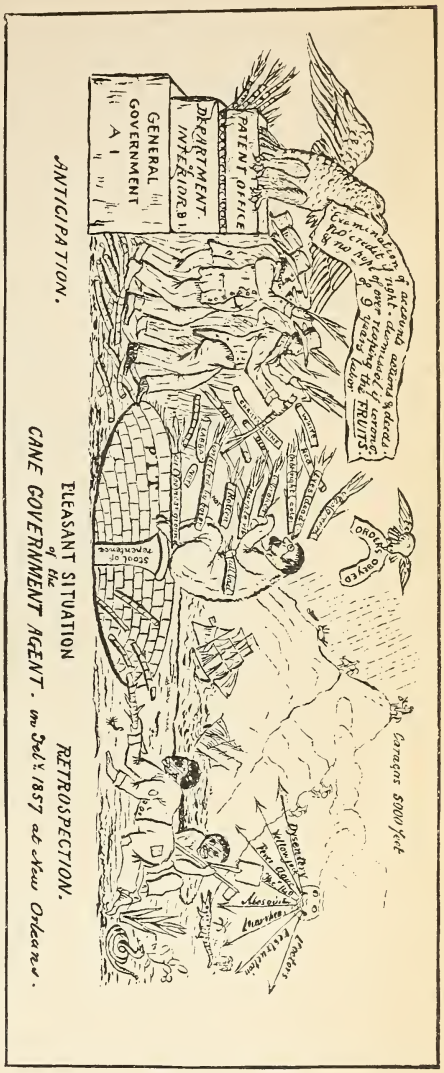


Fig. 1.

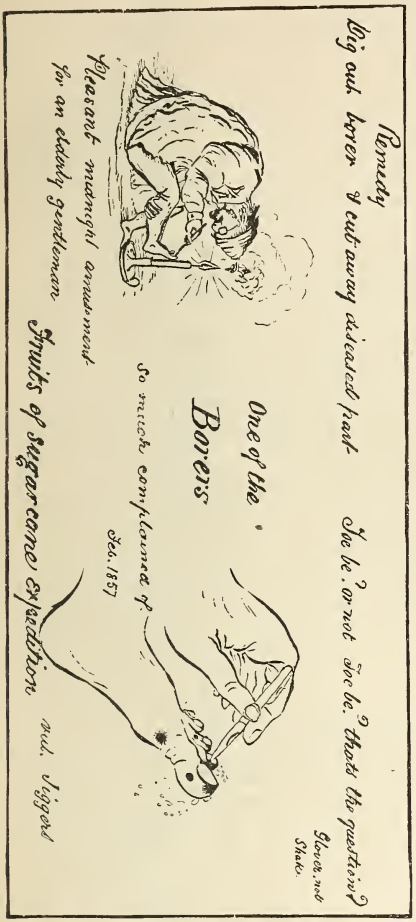

Remedy
Big owl lover & cut away deviated septum
Shall he? or not see he? Thats the question?
Glover, not Shake.
One of the Borers
So much complexion of
Dec. 1857
Pleasant midnight amusement
To an elderly gentleman
Fruits of Sugarcane expedition
and Vegetables

Fig. 2.

successful, bringing a large cargo of cane to New Orleans, though he was attacked with fever very soon after, the result of his exposure in a malarious country, and for a time was very ill. A couple of caricatures of himself made at the time are interesting. (See Figs. 1 and 2.)

About the middle of August, 1857, he was ordered to Mississippi, where the remainder of the season was spent in visiting cotton plantations in different portions of the State. It was a hard season for him, as he was sick during the greater portion of the time, often being confined to his bed. An entry in his journal October 6 is characteristic. "Quarrel between doctors, so I have to dismiss one, and the other says it is no use to attend. Saved my life by it."

It is worthy of mention that at this time his observations were not confined to entomology alone, but to all branches of natural history. Indeed, he let nothing new escape him in any field of experience, his "mems." indicating observations upon insects other than affecting cotton, cotton diseases, soils and earths, vegetation, birds, animals, reptiles, Indian mounds, and even human nature.

The year 1858 marks the period of his investigations upon orange insects, he having been ordered to Florida in the latter part of April, where he remained throughout the season. It was an eventful year, inasmuch as it was marked by events which later on led to his severing his connection with the Patent Office, and beginning his work on entomology.

He now had made the acquaintance of Baron Osten Sacken, Dr. Morris, Mr. Uhler, and other of the earlier American entomological authorities, and had become a member of the Washington Naturalists' Club. In the records of his life at this period are frequent occurrences of the names of Professors Henry, Baird, Girard, Drs. Hayden, Kennicott, Clemens, Forman, Meek, Messrs. Ulke, Cooper, and others, with allusions to prominent Senators and Congressmen of the day. It was almost at the beginning of this year, too, that the first evidences of friction between himself and his immediate superior officer became apparent. He was working at this time upon the plates of his Cotton Insects and Diseases, besides engraving special plates for publication in the annual volume, under the direction of his superior, D. J. Browne.

In January we find such brief entries as the following: "Blow up with B. about article on plows."—"At work etching tea-plant."—"Writing reply to weevil article."—"Row about sorghum."

In February: "Heard at Browne's about Kennicott wanting Fitch here."—"Bothering about bees for Browne. Made sketch; not right."—"Etching and fussing about the bee plate for B., as he don't know what he wants."—"Evening at B.'s; *he will write* all my reports himself, and makes an ass of himself and a fool of me. Don't and won't acknowledge it, as I have never written a word of what he says, and he has not looked at my report yet."

In March: "Evening at Girard's, who advises me to stay, although D. J. B. *will* make a false report of me."—"Another row with D. J. B. He must be crazy."

In April: "Browne at my room, evening, grumbling about Dr. Higgins trying to supersede him; he has got an idea (Heaven knows why)

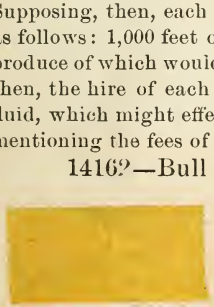
that I am as great a naturalist as Audubon! That Audubon had Bachman to write his articles, and I have (Lord save the mark!)" Browne!—"Still waiting orders. Smithsonian—no cans, no bottles, no tins, no nothin'".—"Spoke to Shugart, who will see Commissioner about my report."—"Off to Florida," etc.

Through May and June he was hard at work in the field observing, sketching, and experimenting with solutions for the destruction of the orange insects. An extract from an official letter to him, signed by his superior officer and bearing date June 23, is interesting at this point. After referring to what has been done and the difficulties in the way it says: "But a more effectual remedy would seem to consist in covering the entire tree with some glutinous fluid, which would close up the apertures of the shells and prevent escape of the perfect insects. Blood has been suggested as being both feasible and economical, preserved by salting, and made sufficiently dilute with water to be readily applied with a syringe. Near the regions where the orange tree flourishes in Florida the alligator is found in great numbers. It is well known that this reptile abounds in blood, which could readily be taken in the winter, when it is in an inactive state. This blood could be preserved in casks, etc.

July 3, this entry: "Killed alligator. After stabbing him in the neck and dividing vertebræ he still lived several hours. Not one pint of blood in its whole carcass, and nearly 5 feet long—one quart to 10 feet; 100 alligators to 25 gallons. Absurd!" As no after mention is made of this proposed remedy, and there is no reference to it in Mr. Glover's published report, it doubtless did not amount to anything.

A year after, however, when Mr. Glover had left the office, a series of articles against D. J. B. appeared in a Washington paper, signed with a *nom de plume*, and among other things this matter was touched upon. While Mr. Glover would never admit that he had written the articles, he never denied their authorship. They bear his unmistakable ear-marks, however, and were preserved by him with other personal writings. As an example of rich satire this one extract on the alligator question is presented:

I have been credibly informed by a gentleman who has had some practical experience in combatting his (the alligator's) obstinate disposition to shuffle off this mortal coil, that. being an animal of warm and generous blood and of a highly excitable temperament, he will yield the almost fabulous amount of *one pint* of the much-desired crimson fluid. One of 10 feet then will give 2 pints, and 100 of that length somewhere in the neighborhood of 20 gallons. Two hundred negroes might possibly capture 100 alligators in a day, one being necessary to hold the head and another the tail, whilst the surgical operator undertakes the pleasing task of relieving him of his claret. Supposing, then, each negro to measure only 5 feet in height, the account would stand as follows: 1,000 feet of negroes to capture and demolish 1,000 feet of alligators, the produce of which would be 20 gallons of the coccus exterminating blood. Estimating, then, the hire of each darkey at $1 a day, making $200 for 20 gallons of sanguinary fluid, which might effectually syringe twenty orange trees in a grove, and, without mentioning the fees of the saurian phlebotomist, you have one of the most astounding



examples of economy in labor that has ever yet soothed and flattered the *otium cum dignitate* of a labor-shirking and a labor-saving world. Wonderful D. J. B.! Confiding ex-Commissioner! Happy and grateful Floridians'"

A caricature on this theme, drawn by Mr. Glover in 1859, with himself portrayed as the "saurian phlebotomist," is presented herewith (Fig. 3).

I orders the US Entomologist to phlebotomise alligators scientifically & to syringe Orange trees with the blood thereof to kill the scaly insect he complaineth because said orders cannot be executed

FIG. 3.

During the remainder of the year 1858, while in Florida, he was industriously employed with field observations, visiting plantations and groves in different parts of the State, syringing whole groves of orange trees, engraving his plates and writing his notes, besides other work for the Department, such as collecting live oak acorns, etc. He was sick much of the time, and complains sorely of mosquitoes and similar insect pests. A characteristic entry in his journal is as follows: "Etching, itching, and scratching as usual from 8 to 4; scratching with pen from 8 till 12, and with finger nails continually."

He severed his connection with the office very early in 1859. His final report is published in the volume for 1858, and in the Commissioner's report in the same volume the statement is made that "the Entomologist has brought his labors to a close." The principal reason for his leaving the service was his inability to get along with the chief clerk, whom he always considered of small ability, and a man who shone only by borrowed light.

The appreciation of his efforts by others always gave Mr. Glover great satisfaction. A little glimpse of this side of his nature, in statements made confidentially to his cousin (Mr. Clapham), I trust will not be considered out of place here:

I am disgusted with United States service, as I have been situated, subject to the whims and orders of a maœuvering and ignorant charlatan; no doubt I could re-enter in winter if I wished, as all the members and Senators are friendly to my views, but I will not unless I have more scope and privileges, and can do my work in my own way. As soon as the former Commissioner, the Hon. Judge Mason, heard of my being out of the service he at once told me if I would accept a situation next fall in Iowa, he would have me appointed to make an (agricultural) entomological survey of the State; and my friend, Doctor Rock, writes to me that he is now endeavoring to have a bill passed for that purpose. This was a great compliment, as Judge Mason is universally admitted to be one of the ablest and most intelligent officers who has ever been in Government service and, as my chief, always treated me as well as possible. At the same time he told me that "he always considered me as one of the chief stays of the Agricultural Bureau, if not the chief stay itself," and paid me the compliment that the service had lost one of its best men when I left. Such things written to you

may, and no doubt will, sound egotistical, but to me they are very gratifying, as showing the feelings of my late chief.

It was at this time that he wrote:

Heaven only knows where my fate may lead me, for at present I am like a feather wafted by the wind. If a good offer were made me, would start to-morrow for either Van Dieman's land or Kamschatka.

But his fate led him to remain in Washington City for a time, where he occupied himself in making new acquaintances and gathering materials for the commencement of his work on American Entomology—meanwhile using his influence toward the removal of the chief clerk, D. J. Browne.

It has been said of Mr. Glover:

In his dealings with men he was just even to a degree that was generous; but his prejudices were strong and almost unyielding. He never forgot a kindness, nor was he in the least delinquent in his recognition of a favor.

It may be added that he never forgot an injury and rarely forgave it; and concerning his old chief, he always spoke in terms of most sublime contempt. He attacked his plagiaristic failings by means of the "deadly parallel" column, in the public press of the day, and wrote pages besides. His life of D. J. B. (not published), in the form of a dozen pen and ink caricatures, is as taking as a Thackeray sketch, the drawing being superlatively grotesque, while the explanations abound in telling hits. This set of drawings would bear reproduction were they not so personal. (The alligator's blood caricature is from this series.)

FIG. 4. An early caricature.

While upon this theme it may be mentioned that several of Mr. Glover's caricatures, made at an earlier period, were reproduced in copper by himself for the amusement of his friends. Many others, not so reproduced, and done in ink or pencil, show him to have been a caricaturist of no mean pretensions. The drawing is frequently grotesque and the action superb, while the satire is most pointed. The caricature habit followed him through life, many examples having been made while he was entomologist of the Department of Agriculture. These were more hastily drawn, however, and were destroyed as soon as shown to a select circle of friends. But he was even more severe in shafts of doggerel verse, which were often written upon the spur of the moment, wholly impromptu, and by means of which he was able to hold up to ridicule those (sometimes in high official position) who had offended him. But he never allowed a duplicate copy to be made, and it is doubtful if there is one in existence.

For several months Mr. Glover continued to reside in Washington, and in the fall of the same year (1859) he entered the Maryland Agricultural College as professor of natural sciences, though at a merely nominal salary. Here he spent all of his time, when not engaged in field work or in teaching and lecturing, in prosecuting the work on his recently begun Illustrations of American Entomology, and in making a collection of birds and insects. His life at the college was uneventful, save that it gave him time to accomplish a vast amount of labor in two important directions, and in April, 1863, about nine years after his first connection with the Agricultural Bureau of the Patent Office, he was appointed United States Entomologist, under Hon. Isaac Newton, the new Department of Agriculture having been established in 1862, and he entered upon the duties of the office at one.

His first reports, issued in 1863 and 1864, being for the most part popular papers upon the more common insects injurious to vegetation in the several orders, together with brief remedies for their destruction, tell us little of his employment at this period. But we know that he made a second beginning of his museum in August, 1864, the reports of the time giving intimations of the new interest which was now absorbing his thoughts. Though the report for 1865 closes with another popular paper (relating to the uses of insects from an economic standpoint), the consideration of seeds, grains, fibers, silkworms, birds, poultry, and domestic animals, including Angora goats, explains the manner in which a large share of his time was now occupied. He received considerable assistance at this time from his confidential clerk, Mrs. L. B. Adams, a lady of fine intellectual attainments, who had had some experience in literary and editorial work, and who took a great interest in the new museum. The first part of this report for 1865 gives evidence of her assistance; in fact the preparation of these documents was the most difficult and irksome of Mr. Glover's duties as entomologist. He always shirked the responsibility as long as possible, and when it

could be put off no longer the work was begun and put through with dispatch to the exclusion of everything else. He was not a ready writer, and in much of his correspondence even, he first made a rough draught of what he wished to say, from which the clean mailing copy was afterwards prepared. Copies of official letters only were preserved, the rule of the office requiring it, as during the entire period of Mr. Glover's term as entomologist the Commissioner of Agriculture signed all public communications.

As to the manner of preparing his reports, they were usually written in pencil, with scarcely any attempt at punctuation, little attention being paid to paragraphs or even to periods and capitals; the work of putting into shape for publication, the most disagreeable of all employments for Mr. Glover, was then given to others—his earlier reports to his confidential clerk and the later ones to the writer. He always knew what he wanted to say, however, as far as subject-matter was concerned, leaving expression to take care of itself. He wrote in condensed style, at times rushing over the paper rapidly, rarely referring to authorities save where he wished to quote literally, with credit, producing his manuscript "out of his head" mainly, from a rough outline previously prepared, giving the subjects to be treated. The drawings for illustration were prepared in two ways, either drawn carefully from the insect and finished in ink, or they were cut from proofs of his copper plates, and touched up or not as might be required, before sending to the wood engraver or lithographer. The illustrations for his last report on the Hymenoptera were all reproduced from figures cut from his plates in this manner and arranged under his direction by others.

The months of August and September, 1865, were spent in Paris in attendance upon the entomological convention held that year, and at which he received the grand gold medal of the Emperor. This was given for his work on entomology, which was adjudged by the jury "to be original in its style and character and deserving to be copied by the entomologists of France as a desideratum in the application of the science to agriculture." The notes concerning the entomological exhibition as well as those relating to the industrial or economic museums visited by him during his stay abroad, appear in the volume for 1865 as a second report. Unquestionably this visit to Europe gave a great impetus to his museum work, and by familiarizing himself with the systems in vogue in other museums of a similar character, he was enabled to produce a better scheme for his own.

The year 1867 was marked by the sale of his collection of fruit models to the Government, which, with the collection of birds, included in the sale, and the mass of material gotten together during the two years that had passed since the museum was established, made quite an interesting exhibit. The scheme was now fairly realized, and, with the increased correspondence which it imposed upon the division, and the preparation of additions to its collections—now quite numerous—the entomologist's time was occupied by divided interests. The year 1867

was a busy one. The work of the division had increased so rapidly that more help was necessary, and an assistant was assigned to him. At this time Mr. Glover was very busy with the preparation of his books of manuscript notes, particularly in Coleoptera and Lepidoptera, adding to the mass of material which had accumulated for so many years compilations from other authorities, to the end of "completing to date" the histories of the insects he had figured. He was in frequent correspondence at this time with Dr. Walsh, Messrs. Uhler, Riley, Sanborn, Grote, and Robinson, and other leading entomologists, receiving from them new material for the Department collection, or to be figured in his work, sending them in return new species for description from the material which was beginning to be received from collectors in the South and West.

The museum was now attracting considerable attention, and the number of visitors was steadily increasing. To a man of Mr. Glover's enthusiastic temperament, so ready a means of imparting information and proving to the world the value of his ideas as now presented itself, was not to be lost. So it came about that by no means the least interesting of the objects there to be seen by visitors was the entomologist himself. Notwithstanding that Mr. Glover's life for many years had been that of a recluse—for in his devotion to his entomological work it amounted to the same thing—he was a social being, and thoroughly enjoyed meeting and talking with people of intelligence and appreciation, whether strangers or not. It was a portion of the duties of his assistants, at this time, to interest the museum visitors as far as possible, and to explain to them its objects and uses. Professor Glover kindly took upon himself a just proportion of this rather tedious occupation—members of Congress, Senators, and other high officials, including strangers who were in any way prominent, being his especial prey. The professor always maintained that duty alone called him from his desk upon these occasions; but sometimes there were ladies in the parties, and the frequent peals of laughter from a merry group convinced us, in our quiet corners, that the entomologist might have made himself a very agreeable society man had he chosen to divorce himself from work long enough to indulge in such frivolous existence. None could blame him if indeed this devotion to duty at such times was mere pretense, for it was almost his only contact with the world, and "all work and no play" does not conduce to the proverbial "Jack's" intellectual development.

In these years he was residing at the corner of Seventh and H streets, occupying a single room which he was pleased to call his "den," and in which, from choice, he ate, slept, wrote, sketched, engraved, and saw his few intimate friends. What with his engraving and writing tables, his book cases (constructed from boxes), trunks, tool-chest, and insect cases, in addition to the stove and regular bedroom furniture, there was little space to spare. But it was all he desired at the time, though a very great change came over him in his manner of living a few years

later, after having taken up his abode on Twelfth street, near F street. Though a single room was sufficient at first, the need of a parlor ere long began to be appreciated; and he subsequently added to his suite a bedroom for the use of his chance visitors. The larger part of his library was brought to these apartments, bric-a-brac and souvenirs of travel were displayed, his pictures hung; and as he never did anything by halves, these accumulated so rapidly by purchase that the vacant wall space of the three rooms was in time literally covered. A description of these apartments will not be out of place.

The carpeted floors were covered with skins of animals, some of them quite valuable, and not altogether devoid of beauty. In two of the windows were plants, and a mass of vines clambered to the ceiling. Near a side window was an aquarium filled with fish, turtles, and aquatic plants, an ingenious fountain, of his own make, playing upon some rock-work in the center, while English ivy was trained upon a wire trellis around the window. The books were disposed in narrow, high cases (boxes set one upon another, with glass-door fronts), and upon the dressing-case between the front windows rested a heavy silver tankard, a family heirloom. The center-table was covered with valuable books, ceramics, and bric-a brac, the mantel opposite supporting a bronze clock, with carvings and quaint metal work disposed about the shelf. Against the paneling of the black mantel were hung a collection of pipes gathered in his travels, some of them made by Indians. Around the room upon light circular stands were displayed several glass cases of richly plumaged humming birds and gaudy exotic butterflies and beetles; and over a central book-case was perched a solemn white owl in spectacles, reading its own history from a work on ornithology. This was his parlor. In the room adjoining (his bedroom) the wall upon one entire side was covered with fire-arms, bows and arrows, tomahawks, and other warlike objects, a human scalp of long black hair forming the rosette to one of his fantastic trophies. Another part of the wall was devoted to rods, nets, and implements of piscatorial sport. At one window stood his large writing table, and at the other a similar table covered with his engraving tools, etching materials, bottles, boxes, etc. Around the wood-work of the mantel-piece in this room were hung cooking apparatus, certainly showing hard usage, and at the third window, looking to the south, there were several cages of singing birds. Some easy chairs, the bed, a stove, and a small refrigerator completed the furnishing of the second room, while the third of the suite was simply a bedroom, tastefully furnished and adorned. It was a veritable curiosity shop where a very pleasant evening could be spent. I must not forget the decanter of sherry, the French kisses and confections or fruit, served upon pink shell plates, which always formed a part of his welcome to his visitors. When there were no visitors, however, the rooms were dark, save as lighted by a student lamp with a heavy green shade which always stood upon his writing table in the corner of the bedroom, for he was never idle when alone.

In 1868 the Department removed to its new building, and the entomologist was assigned to better quarters. The three or four years which followed were marked by no striking events, though Mr. Glover labored on in his chosen work more indefatigably than ever, extending his name and fame through the growth of his museum and through his writings and large correspondence, as well as by the knowledge of his progress in his work on entomology. It was during this time that a large adjoining room to his own was granted him for the use of his division, and for the establishment of an entomological cabinet. This was fitted up with low show-cases similar to those in the museum, one or two of which were supplied with drawers for the insect collections. Mr. Glover took very little interest in the entomological cabinet, however, either in the preparation of the specimens and their classification and arrangement or as a matter of reference afterward. But he always went carefully through all new collections as soon as received, in search of fresh material for his work, laying aside such as interested him, after which the remainder of the collection had no further attraction for him. He was interested in *having* a collection, though he often declared that a series of well-drawn colored figures were quite as useful.

Now comes the publishing period of his life, if it may be so termed, the years from 1872 to 1878, during which time he issued four volumes and distributed twelve sets of his entire work, all except the Lepidoptera being supplied with the names. In 1871 he took up the Orthoptera, which had been neglected by him for many years, and added half a dozen or more plates, the labors of Mr. Cyrus Thomas upon new western material (from the surveys and elsewhere) proving the incentive. His Orthoptera was published in 1872, and was followed at intervals of two years or less by the other works. This matter is fully discussed, however, in another chapter.

The incessant labor of this period, with little exercise and no recreation—not even the Sabbath rest—told heavily upon Mr. Glover. He took no leaves of absence, though repeatedly urged to do so, although occasional visits to the country or to Baltimore, upon Sundays in summer, gave him a little change from the monotony of his every-day existence. At one time he had a strong desire to visit Florida again, and later, after partially recovering from his first serious illness, he was strongly advised to go, his old friend, Mr. Wells ("Alligator") being suggested as a companion on the trip. He continued at his work, however, though in the last year or two of his official life he was more careful of his health, eating more rationally and regularly, and partaking less of cold or such ready-cooked food as could be eaten at any time. He now devoted the Sunday afternoons, when pleasant, to walking, in company with the gentleman with whom he resided, and seemed less averse to having his evenings broken in upon by visitors. He even went out now and then evenings, when he could have the company of a friend to and from his lodgings, as it was difficult for him to get about easily after dark, and he disliked to be in the streets alone on account

of his defective vision. For this reason, during the last ten years of his life he attended no meetings of scientific or other societies, not even the meetings of the Masonic lodge of which he had been a member.

But the long years of constant application, together with possible imprudences in his manner of living and exposure to malarial climates at earlier periods, broke him down at last. We missed him from his accustomed place one morning, and when an hour had passed and he did not appear the circumstance was so unusual that a messenger was dispatched to his rooms to learn the cause of his detention. The answer was returned that Mr. Glover was very ill. How ill was not appreciated by the writer until, standing by his bedside and listening to his incoherent utterances, the unwelcome thought was forced upon the mind that his labors were nearly finished. And so it proved, for although he recovered in a measure from this sudden prostration and lived for several years, he was never able to resume his work, save as he interested himself in some such slight occupation, for sake of relieving ennui, as copying lists of names to accompany his plates. Though his successor, Charles V. Riley, was soon appointed, he was still continued on the rolls of the Department at a less salary, coming to the office as he was able, although in reality he rendered no service. But in time his health further failed him. His disease had made such inroads upon his once iron constitution that it was unsafe for him to reside in Washington away from his friends, and then he unwillingly left Washington to take up his residence in Baltimore with his adopted daughter, Mrs. D. C. Hopper.

Of the remaining years of his life there is little that can be written. Feeling that his active labors were over, he disposed of his entomological library, presented his birds, exotic insects, and other natural history specimens to the Druid Park Museum, and, as he had already memorialized Congress for the sale of his plates, his MSS. having been deposited with Professor Baird at the Smithsonion Institution, there was little to occupy his thoughts but his own sufferings and the trifling things of every day existence. Thus, almost blind and too feeble to go far from home alone, he virtually retired from the world.

After so many years of busy life in the nation's capital, the reaction produced by the life of positive repose, both mental and physical, which followed his coming to Baltimore must have been terrible. The full force of the suggestion never came to me until the occasion of my first visit to him amid his new surroundings. He evinced a boyish pleasure at seeing me, and his eye brightened as kind messages were given him from friends and associates in Washington, or when the old life was touched upon; but withal an air of sadness made itself apparent which told me that he was not altogether happy. Passing over other visits I come to the last one, some months before he died, the recollection of which is as vivid as though it were but yesterday. For a time he seemed like his old self, save that suffering and disease had laid a heavy hand upon him; but after a while he began to talk of himself,

and with a voice husky with emotion, and with eyes suffused with tears, he told me how unhappy he was and how he longed for the end to come. Among other things he felt keenly the neglect of his old friends, some of whom were residing then in Baltimore, and whom, he said, had never called upon him or helped to relieve in any way the monotony of his existence. My leave-taking from him on this occasion was most painful. I remained with him as long as I could do so, but when time came to depart he clung to my hand like a child, walking with me out upon the door-step, and stood looking after me as I walked away. I never saw him again. His death came peacefully on the 7th of September, 1883, surrounded by his immediate family, his wife, and adopted daughter, and he was laid at rest in the Loudon Park Cemetery, near Baltimore.

One who knew Mr. Glover intimately for twenty or more years of his life has said of him, "In his personal habits and intercourse he was peculiar." He was peculiar even to the verge of eccentricity, yet in summing up the many traits of his character, to his very peculiarities is due mainly the measure of success in life to which he attained. He was a man of few friends. In his youth the friendship of one or two enthusiastic boy lovers of nature, like himself, who could enter into his pursuits and think as he thought, satisfied him. In middle life, after a residence of five years in Washington, he says of himself, in touching upon this theme, "Acquaintances I have made many, but friends none." That he made few friends I think was due to several causes—a slight distrust of mankind in the first place, coupled with a feeling that too close intimacy would bring a greater or less degree of annoyance. Then he was a man so thoroughly interested and absorbed in his own pursuits that few who came in contact with him, particularly in later life, found in him that responsiveness or congeniality that one expects to call out in a thorough man of the world. But it may be said of him, once a friend always a friend.

Not averse to society, he enjoyed himself in it, yet in general terms he regarded time spent in complying with its demands as so many hours wasted. I scarcely ever knew a man whose character was made up of such opposing traits. He was most generous in many things which, in the estimation of the world, go to make up generosity, yet in the matter of personal concerns, as far as the world went, his self-interest was so absorbing that it left no heed for the interests of others. "Never trouble Mr. Glover with your own affairs" was a gentle hint conveyed to me as a piece of advice a few months after I became his assistant. Heeding it, I won, in time, his friendship, and then another side of his nature was revealed to me. An exacting task-master with himself at all times, he demanded full and unhesitating compliance with his wishes, when once made known, from those over whom he exercised authority; and yet where the disposition was shown to be diligent and faithful or loyal

he allowed the largest liberty. Strong in his opinions, preferring that his own suggestions should take precedence of the suggestions of others whom he thought less thoroughly informed upon a given subject, he was never unreasonable save when the views of others ran counter to his prejudices, and then he was as inflexible as iron. A little child could lead him, but a regiment of soldiers could not drive him.

In disposition he was serious but rarely melancholy or cynical. On the contrary, he had a rare fund of humor and a keen sense of the ridiculous, appreciating a joke whether at his own expense or the expense of a friend, and never losing an opportunity for its enjoyment. His satire was pointed, his sarcasm cutting, the most common modes of expression being caricature and verse, in either of which he was very ready. But he could also write very pleasant verse in a humorous vein when wrought up to his subject, two examples of which, in my possession, "The Velocipede" and "A Valentine" (and very personal to the writer) are highly-prized mementoes. "He never forgot a kindness," and it was not easy for him to forgive an injury, nor did he ever regain confidence in those who deceived him or endeavored to use him. Of a jealous nature, he was sometimes suspicious, and like many others with this disposition, he was quick-tempered, and his anger, when aroused, for the time being was almost uncontrollable.

Susceptible to the world's praise, he shrank from its censure, which may be given as one reason for his never having described an insect. Mr. Glover could never have been a specialist. While recognizing the importance of, and necessity for, technical work to the end of settling the vexed questions of classification and synonomy, he had no patience with those whom he designated as "species grinders," and in his private discourse was often quite denunciatory in his criticisms of their work. He often made the boast that he had never named an insect, and as often declared it to be his opinion that many of the existing species in our lists were but varieties. In his entomological work generally he was exceedingly cautious in making statements and averse to "rushing into print;" he often underrated his own judgment in an endeavor to be on the side of fact, and he was always just in giving credit to others.

In his habits of living he chose to be untrammelled by the conventionalities of custom, attending to necessities of existence in a way that offered the least personal inconvenience to himself. So the man who from having moved in the cultivated society of his home on the Hudson, had in the performance of duty come to "herd with negroes and Indians in Demerara, where a white man is as good as a darkey," or summered in the Florida swamps "with pet alligators and rattlesnakes," found it no hardship to prepare a simple breakfast while the wax was hardening upon his copper plate, or to eat it, while perchance the acid was eating into the shining metal. His walk at sundown and his restaurant dinner later, his chief mental and physical recreation, gave him zest for his evening's work.

He was methodical without being systematic. His very life in later years was a life of routine only broken here and there by Sabbath visits to "Woodside," the childhood home of his adopted daughter. Nor was he idle during these visits, for upon his return Monday morning he always brought back a considerable amount of fresh entomological material, the result of his field rambles and excursions, frequently announcing a new fact or discovery, or displaying some unknown larvæ to rear, and always exhibiting something interesting.

His enthusiasm was the mainspring of his endeavor, his untiring industry, coupled with method, the means of accomplishing the undertakings which it prompted. He cared little for the good opinion of the world as far as relating to himself personally, but he not only found pleasure in, but invited appreciation of, his utilitarian schemes. It was a great satisfaction to him to feel that he possessed the friendship and esteem of the leading scientific men of his age, but he never courted their favor, and his modesty led him to shrink from posing as a conspicuous figure among them.

Had he lived to complete his work in his own way and found means to publish it in its entirety the world would have had a better appreciation of the immensity and scope of the undertaking than any simple statements of friend or biographer will ever convey.

I will close this brief sketch with a tribute to Mr. Glover from the pen of an intimate friend, written in 1874, which appeared in Field and Forest four years after. The last two stanzas proved prophetic.

THE PROFESSOR.

[Inscribed to Professor G——.]

Little cares he for the world, but sits
  Till evening, from earliest dawn,
And figures and etches and writes,
  And the work goes bravely on.

And a monument grows, day by day,
  That shall tell to the world his fame
When marble has crumbled away—
  And he silently carves his name.

Carves it in Nature's soft lines,
  With a graver skilled and true;
And the acid eats till the eye defines
  The outline of promise in view.

And the days and years go fleeting by,
  Tasks are finished and new ones set;
Still the end is not, nor draweth nigh—
  There are pages unwritten yet.

Pages unwritten that ever will be,
  For the longest life is a span—
That his dream may approach reality,
  He is working while he can.

HISTORY OF HIS WORK ON ENTOMOLOGY.

Mr. Glover commenced his immense work on insects, known as "Illustrations of North American Entomology," in 1859. Portions of the work, that is, special plates of the orange and cotton insects, were engraved a year or two prior to that date; in fact, it may be said that he made two or three beginnings prior to the commencement of his ultimate scheme. A very early idea was a set of pocket plates representing the common injurious species. Quite a number of these were engraved by him, the plates, or a part of them at least, having been deposited in the National Museum with those of his later work. These little plates measure about 2½ inches by 4, the figures chiefly relating to the commonest forms of beetles and the smaller moths, with a few of their larvæ, and a few insects in other orders. The plant affected usually appears in the center of the plate, greatly reduced of course, the insects in some cases being placed upon it. The work is well done, some of the figures being very soft. From a study of his early plates I place them among the first that he did after coming to Washington and while in the employ of the Patent Office, probably 1855. It is interesting to note that on all of Mr. Glover's early plates, made in any consecutive number, whether upon stone or copper, the idea of showing plant and insects together appears, and the same idea was carried into the first plates of his final work, though soon abandoned.*

His second beginning was the outgrowth of the scheme for a grand work upon economic entomology on octavo plates which should comprise the principal plants of American agriculture, with the insects figured upon them. A motive for such work appears in the set of exquisite water-color drawings of flowers and insects, painted by Mr. Glover when a young man, and to which allusion has previously been made. Here are shown the plant, flower, and leaf, and the various stages of some species of the insect known to feed upon it. In a letter written to Mr. Clapham in 1856, where he alludes to a scheme for an agricultural museum, he says:

> Another idea is to go on with my work on insects—to have large engravings of our staple agricultural productions, such as cotton, corn, wheat, potatoes, and so forth. On the wheat root place the cut-worm, chrysalis, and moth; on the ear place the wheat midge, etc., in short, to place every insect that destroys wheat upon the part injured, natural size and magnified, the plates to be issued by the Government, and distributed to every leading society, to be placed in their agricultural rooms. By

* I have nearly the full series of his early plates, given me by their author from time to time, the collection forming an interesting study.

looking at the place affected the farmer can see the insect in all its stages, and, at the same time, by referring to the Patent Office Agricultural Reports, can find out the remedies in general use.

That Mr. Glover contemplated such a work before he came to Washington is evident from a number of plates on stone still in existence, made early in the decade from 1850 to 1860. He has more than once alluded to it in conversations with me, and but for the counter interest in pomology, and in the preparation of his models of fruit, he would have attempted it at that time. I take pleasure in reproducing here a plate made by him in February, 1852, which contains some ten species of insects, all of which are tolerably well drawn. (Fig. 5.) His work at

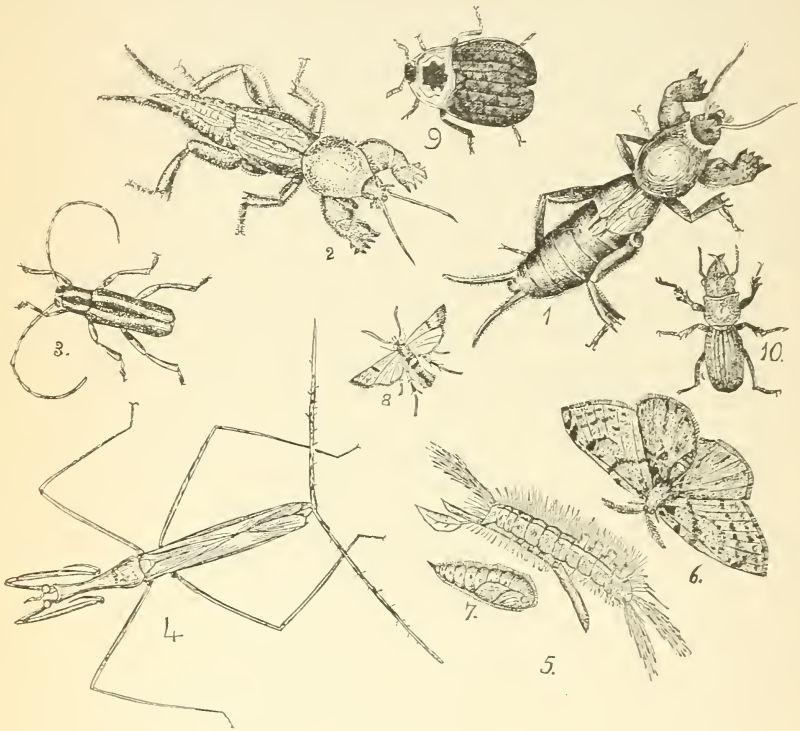


Fig. 5.

that period had attracted the attention of Dr. Harris, and some ten months after this plate was made he was in receipt of a letter from the doctor acknowledging his superior skill in the delineation of insect forms, and asking his co-operation in the preparation of a new work on entomology. I give herewith the main portion of Dr. Harris's letter, only omitting a page or more of explanation of figures in the plates Mr. Glover had sent him. It is as follows:

Cambridge, Mass., *December* 15, 1852.

Dear Sir: Your letter of the 7th instant with the specimens of your engraving and the drawing of the pear-tree insects, reached me this day, and I am very much gratified by these tokens of your remembrance.

Some time last summer another specimen of your skill was sent to me from the horticultural hall, in Boston, but at that time I was very much engaged in preparing copy for the printer, and carrying through the press a new edition of my "Treatise on Insects Injurious to Vegetation." My tables were covered with manuscript proof-sheets, specimens, and various miscellaneous matters, among which your engraving was lain, and it has disappeared in one of the clearings up of my clutter. It is not lost, only mislaid, and will come to light again without doubt when I can muster resolution and find time to overhaul my papers. I name these facts to account for my apparent neglect to acknowledge your favor. My book at last is finished and bound; and now, if you will tell me how I can send a copy to you, it will give me much pleasure to forward it to your address. My scientific friends tell me that all the book wants is a set of figures to illustrate the descriptions. I am fully sensible that its value would be much increased by such illustration, and that it would then supply fully a want that has long been felt for a work combining scientific descriptions of our most common destructive insects with good colored figures of the same.

I am very much pleased with your success in engraving on stone. With practice you will doubtless acquire the skill to represent insects in the very best style of this kind of engraving. This kind of work is much to be preferred to engraving on copper, because of its general cheapness; the stone admitting of being ground down and used again; and a delicate and skillful engraver can represent insects about as well on stone as on copper. I think you will find it quite as easy to execute engravings on stone as on copper, and I hope you may be induced to perfect yourself in this art. Your specimens certainly do you great credit, and I am very glad that you have so promptly and successfully acted upon my suggestion. * * *

When you write me to inform me how to send you my book please to let me know what you consider would be a fair price for the engraving of a plate with insects on it of the size of your specimen plates. The cost of striking off, which must be done by the press, would be another matter, and may be known by inquiry. It would depend in some measure, also, on the number of impressions wanted. I very much wish some arrangement could be made with you for preparing a series of plates to illustrate my book. To do this, however, it would be necessary for you to take up your residence here. The plates might be issued in numbers, accompanied by brief descriptions referring to pages of the treatise. I have also another plan in view, which has long been a favorite one with me, namely: To prepare a series of small popular volumes on our insects, with plates, somewhat like Jardine's Naturalist's Library, to be entitled Insect Biography. The first volume to contain a brief, general introduction somewhat like the introductory chapter of my treatise, with figures illustrating the orders of insects. The second to treat of principal families, illustrating them with the biography of one or two common insects of each family. The third to take up some large group and describe and figure the most prominent species in it, and so on with the other volumes as the public taste and demand for the work might guide or encourage it. A work of this kind would do more to promote a general taste for entomology than anything else, and I think it would meet with very good encouragement. Hitherto I have been deterred from undertaking it for the want of co-operation of a competent artist to execute the plates; our engravers having no skill in such matters and no taste to make themselves acquainted with the details of insect structure, and, moreover, being extravagantly high in their charges. Sonrel, a Swiss engraver, is the only person who can do such work at all well, and he being a foreigner and not speaking English well, it will be difficult to get along with him. Please let me know your thoughts on these plans of mine.

Truly yours,

THADDEUS WILLIAM HARRIS.

Mr. T. GLOVER.

Mr. Glover did not take up with this offer, as he doubtless had other plans in view for himself; but the letter is interesting, as furnishing evidence that Mr. Glover not only worked upon copper at that early date, but also upon stone. I have in my possession proofs of a number of these plates engraved upon stone, the execution of which is far better than the work on his copper plates of the same period. Of one of these, illustrating parsnip insects, Dr. Harris says:

No. 1 is apparently one of the Ortalidæ; its larva unknown to me before No. 2, I have often seen the larva of this moth, but never succeeded in obtaining the perfect moth.

So Mr. Glover was a good observer, as well as a tolerably skillful engraver at this time.

Mr. Glover's reply to Dr. Harris's letter would be interesting could it be produced. I have searched for it among the Harris correspondence at the Natural History Society rooms in Boston, but without avail. The letter was very flattering to Glover, as he has himself told me; but he was not then ready to enter into such an arrangement. What other correspondence may have passed between them at that time can not be stated, but a little over two years after Mr. Harris wrote another letter, which not only gives some interesting facts in Harris's life hitherto unpublished, but is certainly most complimentary to Glover. This is the letter:

CAMBRIDGE, MASS., *February* 13, 1855.

DEAR SIR: On the 4th of September I received a letter from D. J. Browne, esq., then at New York, and on the point of sailing for Europe, informing me that you had been engaged in making drawings of insects to illustrate the next agricultural report of the Commissioner of Patents, and wished to pre-engage my co-operation with you. He further informed me that you were then absent from Washington, somewhere in Georgia or South Carolina, and that on your return in November you would visit me in Cambridge. He also stated that he would communicate with me again on the subject on his return from Europe. Under these circumstances there seemed nothing for me to do but to wait till I saw you or till I heard from him. Moreover, my oldest son was dangerously sick and remained so till his decease on the 19th of October, and in our trouble Mr. Browne's communication was entirely forgotten till it was brought to my mind by a letter received from Hon. C. Mason on the 29th of November. To this letter I replied on the 8th of December, since which time nothing has been heard of the subject therein proposed. I hope that you have seen my answer to Mr. Mason; if you have not, let me beg you to request him to show it to you. I shall be happy to render you any service that is in my power consistent with my other duties and engagements. These will fully occupy me from the 1st of March till the middle of July; so that you must not count on me for any assistance from me during that time. At this present time, having a vacation in college, I am more at leisure than usual. I regret not to have received the expected visit before the opening of the college session.

Indeed, I have been long expecting a visit from you as promised some two years ago, in which I hoped to have made some arrangements with you for illustrating my work on insects. The time is come in which I have an expectation of being able to defray the expense of illustrations to the work, and in which it will become necessary for me to take some decided measure for having them done, if they are to be done at all. The committee on agriculture of the legislature of Massachusetts are now considering the expediency of printing another (the third) edition of my work,

with illustrations. Moreover, overtures have been lately made to me by a publishing firm in New York to get out a duodecimo edition of the book, in which it would be easy to introduce wood-cuts, if a competent artist to make the drawings could be obtained. My first proposal having been made to you to furnish illustrations, and having ever kept this in mind, I now return to the subject to inquire whether your engagements will allow you to undertake the same, and on what terms, and what time you will be ready to begin. It would best promote the object were you situated in the immediate vicinity, for I should need to communicate almost daily with you while engaged on the work.

You may remember my having stated my wishes regarding another work, or rather a series of works, of a popular character, on our insects, in which I hope to have your co-operation. The plan has long been matured; the execution with the means now on hand would not be difficult, and the success seems to me to be almost certain. With the pictures the books can hardly fail finding a good market. Without boasting, I may be permitted to say that we could do in this department, together, what no other persons in the United States can accomplish.

Have you seen Dr. Emmons's big book on the Insects of New York, or Professor Jaeger's smaller one on the Life of North American Insects? These will be a warning against any one's undertaking to deal with subjects with which they are not familiar. Criticism will be thrown away upon them, and I forbear making further remarks upon these remarkable productions.

Do me the favor to write to me at your earliest convenience and let me know what is the extent of your previous engagements and what your plans are for the future.

Yours, truly,

THADDEUS WILLIAM HARRIS.

TOWNEND GLOVER, Esq.

I may mention here that, as far back as 1847, Mr. Glover spent some time in Albany with Gavitt perfecting himself in work upon copper, particularly in the handling of the roulette, by means of which the dark effects in illustration are produced, as shading of wings, bodies, etc. Among his early copper-plates is the one executed in February, 1852, reproduced above (Fig. 4). Some of the figures on this plate show clearly the methods used with stone engraving, namely, stipple shading, as seen in figures 3, 4, and 10, especially. In 1 and 9, on the contrary, the same effect is arrived at by means of lines, though apparently by a hand not thoroughly skilled.

To return to Mr. Glover's plan of a work on insects, as outlined on a previous page, it is impossible to say how far he progressed with his scheme before finding it impracticable. The plates of the orange insects finished in accordance with it (though only approximately) are to be found, pretty nearly as originally engraved, in the Homoptera of the final work by which he is now known. The 22 plates of Insects and Diseases of the Cotton Plant are included in the 273 plates sold to the Government, but were finished, or very nearly so, while he was yet in the service of the Patent Office. Some extracts from his journal in 1858, when in Florida, throw very interesting light upon this point:

June 28: Began plate on Coccus. *July* 6: Began Plate 2, lemon (coccus). *July* 9: Commenced plate of Papilio thoas, on orange. *July* 21: Began coccus, Plate 4; orange; etching all day. *July* 24: Finished Plate 4; afternoon to Redwater Branch, and brought home cargo of red-bugs. *July* 30: Finished Plate 5. (The next day he

commenced Plate 6, cotton terminal shoots.) *August* 6: Commenced Plate 7, young boll. *August* 9: Commenced Plate 8, Orange Aphis, grasshopper, etc. (insects of different orders on the same plate). *August* 16: Commenced Plate 9, orange-scale parasites. *August* 20: Commenced Plate 10, Saturnia Io. *August* 26: Began Plate 11, *Trichius delta*, and cotton flower. (The last mention of his plates is in the entry for September 25.) Finished Plate 16, corn worm, and have no more plates to do. Have written to Washington for them, but, like all I write for, nothing comes.

After that his only work on plates was retouching and burnishing. That these plates were not all that he made for the cotton and orange series is evident from various allusions to "etching" in the journal for the year 1857, while in Mississippi, one entry being "etching cotton blight."

The above extracts show the design originally of a work on cotton and orange insects, in which the insects of different orders, on the same plate, were grouped together indiscriminately. Other plates were prepared in accordance with this purely economic scheme of arrangement, and some of these, on which some one order of insects predominated, were afterwards incorporated in the final work, the inappropriate figures being burnished out and other insects substituted. Some of these plates may be known in the "illustrations" by having a flower or part of a plant in the center, around which the figures are arranged. Other plates, made in accordance with the purely economic scheme, were suppressed altogether.*

I notice in the private journal for 1855, at which time Mr. Glover was in Florida and the Carolinas, under date of June 19, this entry: "Drawing and sketching—improved method of coloring—pressed insects." A note-book of this year's work was filled with lepidoptera drawn (?) after this method, the process for which, when Mr. Glover first showed me the series, he described as follows: The wings were carefully detached and laid in proper position, after which very thin paper, coated with some adhesive substance, probably mucilage, was pressed upon them; after going over every portion carefully, with gentle pressure, to insure complete contact, the wings were removed, the *scales* only remaining, by which means a very perfect fac simile of the markings was obtained. The fragment of paper was then carefully trimmed to exact form of wing, glued upon the pages of the note-book, body, etc., *sketched in*, and the figure was complete. I think Mr. Glover only employed the process (in part) during one or two seasons, as he explained to me that its chief use was to save time in making drawings, or the annoyance of carrying around a collection of the preserved insects.

After leaving the United States Patent Office, in the winter or early spring of 1859, Mr. Glover gave himself heart and soul to his final conception of an illustrated work on entomology, for he had realized the

* The writer has a number of proofs of these, as well as impressions of two or three plates as they appeared before alteration and the addition of new figures. (See plate XXVII, Coleop.; Plates III, IV, and V, Orthop.; Plate XXIV, Lepidop; and Plates IV, V, and VI, Homoptera, as illustrations of *adapted* Plates.

difficulties in the way of carrying out the former scheme and abandoned it. In July, 1859, he writes to a friend as follows:

Since I left the office I have had several offers from various States to continue my work; and probably in the autumn I may make some arrangement with them, but at present am collecting material for a large work on entomology, more especially connected with agriculture. I have already in four months etched and nearly finished twelve copper plates, large octavo, comprising nearly 150 of our principal Coleoptera, beginning with the Cicindelidæ and Carabidæ, as beneficial to the agriculturist, inasmuch as both larva and imago destroy other insects injurious to the crops. I intend at the same time, to make my work useful to the entomological student, as I shall figure specimens of all the leading families unconnected with agriculture; and as there is no such work in America, I am encouraged by the scientific men here. The work will not be finished for at least three years, but by that time I hope to have at least 1,500 to 1,800 specimens etched and colored.*

Of the habits of his life at this time, not dissimilar to the habits of his later years, the same letter gives a number of hints. He calls it a hermit's life: up at 6 or 7, breakast in his "den" (the writer of this can readily picture both "breakfast" and "den"), after which he smoked "a hookah" (nearly ten years later he gave up smoking altogether); the rest of the day, until 5 o'clock, being given up to the arrangement of his specimens and to etching.

Then he took a restaurant dinner, "Jewish passover fashion, with cap or hat on," after which he hunted for specimens, and returned home about 8 o'clock in the evening. From that time until 10 o'clock he made his notes of the day, searched for references, and then to bed. An exacting task-master, he applied himself without cessation, inaugurating that severe routine in his labors, with little or no recreation, which marked the last ten years of his life. At this time he wrote: "My maxim now is '*nulla dies sine linea*,' and it is astonishing at the end of three months to see what the motto will accomplish." But the results are due not to the motto, but to the persistent application, which in Mr. Glover was second nature—more marked in his case than in that of many men who perhaps have produced greater results, for he literally did not allow himself any recreation besides that which was demanded for the hours of sleeping and refreshment.

To his cousin, Abram Clapham, of Leeds, England, he writes at this time as follows:

If you can procure me specimens of your common British insects, without trouble, I would be much obliged, as I want them for comparison, to find corresponding types here, and to see what differences there are between our Agrotidæ and the cutworms of England, as I believe that many will be found to be perfectly identical Several insects have been imported we all know. Take, for example, the *Galeruca calmariensis*, which is even at the present moment destroying all our European

* His work was commenced about March 1, 1859. From that time to the date of his entering the Department of Agriculture, in 1863, was about four years. He held the position of United States entomologist just fifteen years to a day, making nineteen years of labor upon his undertaking up to the time it was so suddenly discontinued by the breaking down of his health. How many more years he would have worked upon it, had health been spared, it is difficult to say.

elms in Washington. And please, if you send any, at the same time send the scientific names, as I can then identify them by referring to English works. By the way, what are your best agricultural entomological works, as I shall order them here? I have Morton's Encyclopædia of Agriculture, Westwood, and sundry other English works; have ordered Ratzburg's Forst Insecten, etc., so that I shall also be able to compare with the German. Dr. Girard, who is at present in Germany, has promised to send me all the German insects he can procure. If you know of any one who has about £5 worth of *common* (*no rare*) insects to sell, please let me know. I want those principally that injure crops, and of all orders. As soon as my plates are finished I shall send you a copy, as likewise of the cotton and orange insects I finished whilst in the service of the Patent Office.

Mr. Glover was now in his forty-seventh year. Of his work during the last six months of 1859 there is little to record, save that he applied himself most industriously to his undertaking. After becoming connected with the Maryland Agricultural College, about 1860,* he found himself in better position to push his work. Living in the country, there were more opportunities for observation and for the study of the habits of insects. Then he was accompanied in his field rambles by his students; and with their aid, and the material contributed from his breeding cages, he soon accumulated a fair collection of the principal insect forms of the locality. Always ready with his pencil and colors, he figured everything he saw that was thought to be new, even making drawings of caterpillars and chrysalids of species that he was unable to rear to the perfect state, and which in many instances he was not able to identify until years after. Some have never been identified. This partially accounts for the incongruous arrangement of the insects on the later plates, as relating to classification, in comparison with the earlier ones, where family grouping of well-known forms is the rule.

It is to be regretted that Mr. Glover did not regard his insect collection of more value, and had not shown more care in the preparation and after-preservation of the specimens. After figuring an insect the specimen had little further interest for him. Indeed he did not take the trouble to set some of them at all, or only in such manner as would admit of their being correctly drawn. He used for the purpose entomological pins, the ordinary pins of the dressing-case, or even needles; the specimens were set at various heights, and were sometimes badly damaged in the mounting. Many of the Lepidoptera, as well as other forms with large wings, were most carelessly prepared, these appendages drooping or sticking out in several directions. When I first saw his cases, in 1866, the ravages of mold, verdigris, and anthrenus appeared in almost every box; single wings, antennæ, and legs were often wanting, and now and then a body. Nor could it have been otherwise, for the boxes, made to open like books, were mostly without cork, the tough pine wood at the bottom making it difficult to secure a specimen, the pins being frequently bent or broken at the points and sometimes turned at a right angle. Had his collection been better preserved and his types

* I can not learn the exact date of Mr. Glover's connection with the Maryland Agricultural College. It must have been the latter part of 1859.

for illustration indicated, the necessity for subsequent identification of many of his figures from the figures themselves would have been obviated. Some figures, particularly moths, have never been identified and are not named upon the plates. It is, of course, recalled that he figured many loaned specimens, particularly upon his later plates; these also should have been indicated in every case, although any doubtful identification, as they were received from specialists, is hardly a probability.

I am at a loss to account for his lack of system and want of care in so important a matter, when he showed such nicety, and such delicacy of manipulation in the preparation of his bird collections, unless it came from his belief, frequently expressed, that figures were as good as originals, and far more easily cared for.

When it was proposed to establish an insect cabinet in connection with the museum of the Department of Agriculture, examples of the latest and most improved cases in use at Cambridge for this purpose were obtained and brought to Mr. Glover's notice. It was a peculiarity of his nature that he took slowly to "new-fangled notions;" and partly considering the expense, he decided that shallow pine drawers with loose glass covers were good enough. He was prejudiced against cork bottoms, though the use of cork was strongly urged, and finally compromised on paper felt. As the sequel proved, the splitting and shrinking of the cases and drawers in the dry steam heat of the Department building altered his views materially, but only when it was too late to remedy the matter.

In the letter previously quoted Mr. Glover states that his work will be finished in three years. The time had expired a year previous to his again entering the service of the Government, but I do not think even at that time that the work was any nearer completion, as regards his own ideas upon the subject than when he had been working four months. It is evident from the very manner in which he worked that he had placed no definite limit to it. He conceived the scheme, and seemingly without having measured the magnitude of the undertaking, he went industriously to work to carry it out. As the end proved, "completion" in this case meant when there were no more insects to figure, for with no fixed limit it could have been carried on indefinitely.

Mr. Glover became Entomologist of the Department of Agriculture April 1, 1863. It was then located in the basement of the Patent Office building. In time two rooms were secured for the purpose of a museum, and in the corner of one of these the Entomologist finally established his office. This was in the summer of 1864. A letter to Baron Osten-Sacken, written in October, 1864, in reply to one from this specialist, shows that his work was now temporarily interrupted. He says:

* * * I have been so much engaged for the last year in the Department of Agriculture, with office work and laying the foundation for an agricultural museum, that

I have not been able to etch at all, so that my work remains at a stand-still at present. In a few weeks, when I am not so fully occupied as I am now, I intend to recommence etching, when I shall be happy to attempt your plates,* although I am afraid that you overestimate my abilities to do them, etc.

For the next two or three years his work was still more or less interrupted by Department affairs. There was now a divided interest. The new museum had been established, and to a certain extent it absorbed his attention and his thoughts. Then in 1865 he spent several months in Europe, as has been mentioned, the exhibition of insects in Paris calling him abroad. I have his Paris note book, filled with pencil outlines of insects, and with written descriptions, which tells how well he spent his time while there. And the fact that the design of his work secured to him the grand gold medal of the Emperor above all other competitors was proof that it was practical and valuable even at that time, when it had not reached the half of its present scope or dimensions.

The writer became Mr. Glover's assistant in the Department of Agriculture in 1867. By this time entomological science in America had made such rapid strides and the study had become so widespread that there were workers and observers in all parts of the country. Through acquaintance and correspondence with many of these and through the regular correspondence of the office he was now able to secure large acquisitions of new material, so that the work, for a time partly neglected, was now being pushed forward uninterruptedly, saving the interruption of official hours, from 9 a. m. to 3 p. m. As near as I can recall, on hasty examination of the plates, the Lepidoptera had been completed, at this time, to plate 67 and supplement D, the supplement series having been commenced in order to keep the diurnals and their larvæ together upon consecutive plates as the work progressed, the numbered plates being devoted to the moths. The Coleoptera had only reached plate 28; the Orthoptera less than half its present number, 18; and the remaining orders even a less number.

Meanwhile the text to accompany the plates was begun on somewhat the same principle as the ready-reference books which Mr. Glover had from time to time prepared for his private use. The earliest of these reference books were compiled or prepared in the years of service in the Patent Office (or perhaps even earlier), and at first, seemed to have been used by him as "vest pocket editions" of notes on the habits of common insects. They were tiny blanks books, measuring 2½ by 4 inches (of the size of a small pocket diary, and no thicker), into which had been closely copied, in penmanship as clear as copper-plate and as fine as print (250 to 300 words to the page), the chief facts connected with the natural history of well-known and injurious species, the food plants, habitat and other brief data, the whole conveniently arranged and in-

*These were *drawings* of the wing-veins of some thirty or forty species of Diptera, and which he afterwards prepared.

dexed for use. A photo-engraving of one of these pages, exact size, is here reproduced (Fig. 6):

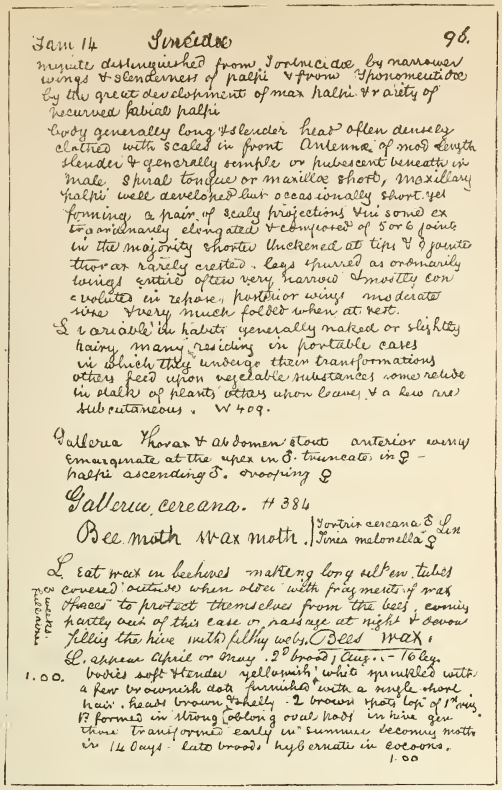


Fig. 6.

By the time the numbers of his plates had assumed some importance a set of larger note books had been prepared, into which he recopied the data above mentioned, together with notes of his own observations, besides references to figure and plate of his own work. These were prepared for each of the principal orders; and for two or three, as the Lepidoptera, Coleoptera, and Diptera, an additional series in which the food plants were alphabetically arranged, with a list of the species of insects frequenting or destroying them following each plant named. In time, as the number of plates increased, as his observations became more extended, and entomological publications had become more numerous; and as the old books were bursting their covers, a set of letter-size blank books were obtained, and the entire mass of notes recopied on a far more exhaustive plan, the whole finally constituting the material of the text which would accompany the plates when published.

This was evolution pure and simple, for I have always considered that the text of Professor Glover's work was the direct outgrowth of

these little pocket reference books, a number of which he gave me, and which are valued souvenirs.

When recently examining the manuscript left by Mr. Glover, now in the National Museum, I found with his text of the Diptera the preceding volume of notes also, from which it had been copied, illustrating perfectly his method, as described above. In this volume, as with others, when the blank pages had been covered, slips of paper of various shapes and sizes were pasted in; the accumulation of these slips and the inserted pages making it in time difficult to find any thing readily, and then the new blank book was necessitated. With each recopying he made changes, revising, adding new facts, and giving fuller accounts of particular insects, so that the new volume of notes in a short time grew to twice the size of the one that preceded it. As another example, the manuscript of his "list of animal and vegetable substances injured," accompanying the Lepidoptera, in all something less than 100 pages, he copied in seventeen days, in the winter of 1870, the dates of commencement and completion being recorded on one of the fly leaves of the volume.

The fact that the text of his work was brought together in this manner will account in a measure for its apparent incongruity in the different parts, considered in the light of an entomological work, which the plates were supposed to illustrate. In reality the plates were the "work," and the text or subject-matter a secondary consideration. That it has been gradually evolved from a very early beginning is shown, too, by its many references to Westwood, to the old German work by Leunis, and other of the earlier authorities whose publications in modern times have been entirely superceded by the many recent works that have kept pace with the progress of entomological science in the United States. As these extracts and references referred chiefly to general habits of groups and families and to classification, the necessity for a later revision was not fully appreciated. Mr. Glover always had a very high appreciation of Westwood,* regarding the work something in the light of an entomological bible, and to that extent always a safe rule and guide for the seeker after truth. In minor portions, therefore, his text was not fully adapted to the American student; and his material from Leunis less so. In his treatment of species, however, he aimed to give in very condensed form the *known facts*, from whatever reliable source they were obtainable. That the work remains in an unfinished condition is due to the sudden failing of his health.

But the *scheme* of the work as contemplated by its originator was a grand one. No more complete *reference book* of entomology was ever conceived or more practically carried out as far as he had been able to carry out the design. This, in substance, is the scheme of arrangement as far as relating to species.

*Introduction to the Modern Classification of Insects, 2 vols., 1839.

Under the name of the insect appeared first the Greek or Latin derivation (both genera and species); then followed the reference to plates and figures of the work, for sometimes the larvæ and imago were figured upon different plates, and even the male and female appeared in different places; then a list of the synonyms, followed by a short and concise account of the life history of the species, from egg to imago; then followed *habitat*, food plants, and, lastly, the best-known remedies, the parasites, and references to other authorities. In another portion of the work was given alphabetical lists of the food plants in the different orders, with the insects figured upon them; and the whole work was to be so simplified and made so available for consultation by an admirable system of cross-references that the merest tyro could make use of it. When a new fact was discovered it was at once jotted down in the proper book of manuscript notes. When a new number of some entomological publication was received it was carefully digested, and the new facts transcribed into the appropriate place, with due credit, so that the work grew by almost daily accretion to its pages, and, as far as the later material is concerned, it was up to date. In these manuscript notes Mr. Glover should have indicated, however, the records of his own personal observations. How much injustice he may have done himself by locking up in an unpublished work the results of these observations for many years will never be known. The folly of prematurely "rushing into print" is conceded; but it should be known that Mr. Glover made many new and interesting discoveries that were worthy to have been placed on record at the time of their discovery that he received no credit for whatever.

Some of these he was urged in vain to publish by contributions to the scientific periodicals of the day; but always looking forward to that indefinite point of time when his entire work would be completed (as though it ever could be finished by such a man while there were insects to figure or new facts to record), he declined publishing any portion fugitively, save as it might be appropriately used in his special reports as entomologist of the Department of Agriculture, and even then he used as little as possible. He was extremely cautious in making statements, disliked criticism, and oftentimes in giving the life-history of a particular species, stated the facts on the authority of others, with credit, in preference to his own, when both were equally full and authentic.

If he did not give to the world the results of his observations during these years, the entomological world was kept fully posted as to the progress he was making with his plates. Dr. Walsh, Messrs. Grote, Saunders, Strecker, Sanborn, and others loaned him box after box of unfigured species, which, with other material, enabled him to complete almost two plates a month. Copies of these plates were printed as soon as the engraving was finished and corrected, and after coloring half a dozen or more copies of the plate with his own hand, they were mailed

to leading authorities whom he wished to compliment, or to those who had loaned him insects. The borrowed material was not necessarily retained until the plates had been finished, for his first work on receipt of a species new to him was to make a careful drawing of it in detail, after which it was colored to life; the name was then written upon the drawing, together with brief notes (sometimes) for his guidance when it came to be engraved. The plates were laid out most carefully and the position of each insect indicated before a line was drawn. The figures were then carefully traced upon gelatine, the lines filled with dry red lead, and the outline transferred to the copper. After this they were etched and finished with the graver in the usual manner.

It has been a matter of surprise to me that Mr. Glover did not more carefully preserve the original drawings from which the figures on his plates were engraved. Many he did preserve, but by far the larger portion of the earlier ones are not now in existence, as far as I have been able to learn. Some of the more recent ones are now in the possession of the National Museum, though chiefly relating to two orders.* But he always made a practice of coloring the first copy of a new plate very carefully for his private set of plates, his working set, as he called it.† and subsequent copies were colored from this.

In 1868, when the Department of Agriculture was removed to its new building, the entomologist was able to have a room to himself, to which he brought a large library, and where he deposited his plates for safe keeping. An amusing peculiarity of the man at this time was shown in the matter of book-shelves, which, for reasons of his own, he fitted up at his own expense, from boxes, though there was no necessity for his doing so.

He was now allowed a special museum assistant, a taxidermist, and a messenger, in addition to the regular entomological assistant, and the demands of the museum upon his time were thereby lessened. This left the hours of official duty more free for entomological investigation, for the compilation of notes from current literature and from authorities which previously had been only partially reviewed; though it should be stated that no inconsiderable portion of the day was devoted to callers, and to those seeking information upon a wide range of subjects connected with the museum display or otherwise. To all he showed the utmost courtesy, though the more prominent of his visitors were invariably taken to his private office to see the work on insects. The scheme was there unfolded in detail, and he ever delighted to talk to an intelligent listener. He described the design in full, and at the same time illustrated its utility by referring to some well-known injurious species, invariably closing with the reading of a brief account of its history, with references to remedies and to the figures of the insect in different stages upon his plates, and with the stereotyped query: "How do you like the plan?"

* Many of the Florida drawings are in the Harvard College library.

† This is now in the National Museum.

There was a humorous side to this almost daily practice, which is also illustrative of the man. Occasionally it happened that he told the story a second time to the same individual, who was dropped politely, but instanter, when he had learned of his mistake; and an incident like the following was not of infrequent occurrence:

Enter visitor, who grasps his hand warmly and familiarly, showing the greatest interest in his entomological work, and perhaps introducing a friend who is with him. The professor makes a great show of delight at again meeting him, quietly gets him into the museum, and excusing himself a moment, rushes into the room of his assistant with a half whispered: "Charlie, who the d—l is that?"

As every man is said to have some particular weakness or idiosyncrasy, Mr. Glover's seemed to be an absorbing pride in his work on entomology and in his museum, which amounted to almost childish vanity. A man who cared little for compliment in a general sense, his work was his life, and he expected every one with whom he came in contact to appreciate it almost to the point of his own enthusiasm, which was boundless. On the other hand, disparagement hurt him like the barb of an arrow. Sensitive as a woman, he could not bear adverse criticism, published or written. It seemed to him almost a personal thrust, and where one showed the least approach to being hypercritical, it filled him with most unkind feelings toward the author. Nevertheless, friendly criticism given in the shape of kind advice or suggestion, if delicately put, was always thankfully received, and particularly from those whose opinion or judgment he respected. I can not but recall a certain correspondence with Dr. Walsh, relating to some accidentally damaged insects, which, if produced here, would prove spicy reading. There were others, too, with whom Mr. Glover seemed always at swords-points whenever he came in contact with them, and towards whom he was wont to express himself in the most emphatic language, for he was a royal hater.

As an illustration of how Mr. Glover's feelings could be outraged by unjust censure and fault-finding criticism, reference may be made to a little publication issued in 1872, purporting to be a history of the Department of Agriculture, from the pen of its chief clerk, which aroused his indignation and stirred him to the very depths. The work of the division was commented upon in an exceedingly unkind way, a garbled quotation from one of the professor's reports given, making him say in substance that the new facts and the records of observations emanating from the division were quoted "extensively" from the published material of other entomologists, who were named. The remarks which followed were filled with left-handed compliments, written in a satirical vein, and closing with this extract:

It is not required of the entomologist that he should visit the fields and orchards, and there study the habits of obnoxious insects of which but little is known. A contrary impression has been entertained; but it is proper that the exact truth should be stated. It would seem, however, that the entomologist of the Department should fre-

quently verify, by personal observation in the field and orchard, the correctness of the theories and suggestions of other entomologists, and there aid them in devising remedies against ravages of insects. Many State governments have employed entomologists to aid the farmers in their warfare against noxious insects, and in this great work, which requires that the broad country be frequently visited, the entomological division of the Department of Agriculture might sometimes, without presumption, take the lead.

Mr. Glover defended himself in a little brochure which he called "A Vindication," which was published shortly after, wherein the extract referred to was given in full, the extent of quotation from other authors stated, and other portions fully replied to. Moreover, the chief clerk was privately held up to ridicule in a clever bit of doggerel verse, which the professor read to all his intimates in the Department, though it was not permitted to get out of his hands.

Regarding the fact that the Entomological Division was not engaged in field work throughout the country, Mr. Glover considered that his twelve years of previous field work amounted to something, and also maintained that it was sufficiently difficult to obtain the necessary funds for the routine work of the division without considering the greater expense of field observations and investigations. On this one point I think Mr. Glover was open to criticism, as he never made the effort to secure appropriations for the purposes of field work, but rested on past laurels. His private work may have been partly responsible.

I think the period from 1869 to 1872 marks the most active years of his entomological work during his connection with the Department of Agriculture. Not only was he more interested in the work of the Entomological Division, but the preparation of the text of his private work received a greater impetus at this time, while the engraving of his plates was steadily pushed forward. By 1870 over ten years of labor had been spent upon his undertaking, and it had grown to such proportions that the framed plates, cut to octavo size and hung upon racks nearly 7 feet high, occupied one entire end of the Museum hall, which was 50 feet wide. His life was now a perpetual round of systematic employment, and he was even more settled in his habits than in 1859, when he detailed to a friend how he spent his time in a letter previously quoted. Frequently up as early as 5 in the morning, he etched or drew until almost 9, saving a short intermission for breakfast, which for many years he had been in the habit of providing himself; though later, to save additional time, it was prepared for him and sent to his room. The hours from 9 to 3 in the afternoon were spent at the office in an entire change of occupation; then back to engraving again, which occupied him as long as he could see; then he took a short walk and obtained his supper. The evenings were always spent in writing; and it was a matter of pride to accomplish each night a certain task which he set for himself, and which he would not relinquish until the last line was written.

As Mr. Glover finally sold his plates to the Government (he gave his manuscripts for nothing), the question has more than once been asked of me if he ever employed himself upon them in any way during the hours of official duty. To this question there is but one answer, No! Mr. Glover himself appreciated the force of the suggestion and the possibility of such a charge being made; and, not to be misunderstood in the matter, he rarely lost an opportunity to explain to visitors, while showing his work, that it had all been done "outside of office hours, before 9 o'clock and after 3." Naturally the phrase in time became stereotyped.

The closing of this period marks the opening of his publishing period, as may be termed the years from 1872 to 1878. For many years he had talked of publication, but, as has been shown, it was always a thing of the future. As far back as 1860 the matter of publication had been discussed with his associates, and with the accumulated material of ten years it seemed to his friends that the time had come if ever to bring the work before the world. The late Professor Baird, a firm friend to Mr. Glover during a period of twenty-five years, was very enthusiastic about the matter, and upon several occasions stated his willingness to secure a publisher. But the engraver author was not ready. The work had reached such magnitude that he wished to complete it from his stand-point of completion, and make it an exhaustive illustrated encyclopædia of American entomology, that would find a place in every large library in the land. He did not wish to issue the entire work as a private venture with a probable contingency of great personal pecuniary loss, because it was his dream that it should be published by the Government and be widely distributed gratuitously. The idea had been in his mind for years, and he frequently told me, in conversations of a confidential nature, that in the event of his death he should leave the entire work to the United States Government any way; and at one time he seriously considered the expediency of bequeathing with it a portion of his private fortune to complete it, and to insure its publication in a proper manner after his death.

The talk concerning publication was not without its influence. The preparation of the plates had been known to the entomological public for so long a time, and there was now so little possibility of publishing the work in its entirety in the immediate future, its author forsaw the advantage of, if not the necessity for, a present recognition of the importance and utility of the undertaking, which could best be secured by preliminary publication of some of the plates themselves. It must be admitted, too, that he was actuated toward publication in this manner by a secondary motive—other than a wish to bring to the scientific world a knowledge of the value and immensity of his undertaking—and, prompted no doubt by his desire for the world's golden opinion, a wish to know the exact position his work would obtain in entomological literature.

In 1871 he decided to bring out an author's edition of the plates of Orthoptera, which had recently been increased to thirteen by the addition of new Western material; the new species described by Dr. Cyrus Thomas and material furnished by Mr. Scudder and others forming a considerable portion. An edition of 250 copies, large quarto, was decided upon, and the letter-press was produced a single page at a time at a small printing office in the rear of a Seventh-street book-store in Washington. The work was very incomplete, and does not in the smallest degree represent or carry out the design followed in the preparation of his mass of unpublished "manuscript notes." He does not even fulfill the promise of his introduction.

His table of classification occupies about half a page, and his notes on food and habits of Orthoptera only two pages and a half, the remainder of the text, some five pages, being devoted to "lists of substances injured," and lists of genera and species figured, or, in other words, to the index. This is the published work on Orthoptera. In short, as a work, so incomplete and imperfect, and giving so little idea of what had really been done by Mr. Glover in his twelve or more years of almost incessant labor, that it is to be regretted that he published it in this shape at all. To that extent it placed the author and his great work in a false light, even though the gratuitous publication of a dozen or more of admirable plates alone, with over two hundred figures of correctly named insects in a somewhat neglected order, was a valuable contribution to the entomological literature of America and of the times. Not over 50 copies of the work were bound (in paper), and these were presented to the prominent entomologists and scientific institutions of the country. The remainder of the edition lay piled in the office in sheets for a long time; but was eventually disposed of for waste paper.

Mr. Glover received many flattering letters and complimentary notices following this initiatory publication, and a year later he took steps to bring out a small edition of the Diptera in somewhat the same manner, though rather more full and complete as to the text or letter-press. This, when published in 1874, was a work of 133 pages, printed from stone, upon plate paper, upon one side of the sheet only, the letter-press being a fac-simile of the author's wonderfully clear chirography, and it was accompanied by 10 plates and their explanations. The history of this publication is interesting.

The publication of the Orthoptera had been unsatisfactory even to Mr. Glover, so much so that he contemplated a new edition, and in the Diptera he aimed to produce something more complete and valuable. The preparation of the manuscript was finished in the summer of 1873, and in September it was sent to Dr. Le Baron for his opinion upon its merits, and for revision and correction.

September 14 the doctor wrote Mr. Glover a short note, acknowledging receipt. He states that he has had a couple of days to look it over, and that he is pleased and surprised at the amount of interesting and

valuable matter which it contains. A postscript is inclosed, extracts from which are here produced:

P. S.—Since writing the above note, and before mailing it, I have more carefully examined the plates of Diptera, and am satisfied that they are correct; correct also, so far as I have examined, in their minute details.

As these plates already extend to twelve in number, in addition to the supplementary plate A and as all the families, I believe, are more or less fully represented, it appears to me that the benefit accruing to students from their immediate publication more than outweighs any advantage which an additional plate could give, unless such plate could be prepared without delay.

My idea is this: The plates now finished being so extensive and so near perfect, and their publication having been so long delayed, I should publish them as they are, or with such additions and corrections as you now have at your command, and leave it for a future edition, if such be called for, to make the work still more extensive and valuable. This is the way the thing strikes an outsider; but perhaps you, who are behind the curtain, can see difficulties which others can not. * * *

Permit me to refer to one serious inconvenience, not in the execution but in the arrangement of your figures. I mean the indiscriminate mixing, on the same plates, of insects of different families, so that the student wishing to identify a species by a reference to the plates would not know to what part of the volume to turn. If he knew the name of the insect he can refer to it by means of the index; but if he do not know it he will not know in what part of the book to look for it. This will be most inconvenient in the Lepidoptera where the figures are scattered over so many pages. This was done apparently to economize space, and we shall have to submit to the inconvenience for the sake of the many benefits which we shall be able to derive from the work.

September 25, 1873, Dr. Le Baron writes again as follows:

I have looked through your valuable compendium of Diptera, and have made such suggestions and alterations as appeared to me desirable, and which I trust will meet with your approbation. As it was impossible to examine the work thoroughly, within the time allowed me, and in the intervals of other duties, I have confined my examination mostly to that important portion of the work which lies between pages 92 and 180 of the manuscript. The introductory part, as I understand from the preface, was compiled in a great measure from notes furnished by Baron Osten Sacken, and therefore needs no revision. Next follow the plates, which must be regarded as the special feature of the work. The figures are numerous, neat, pretty, and life-like, and I believe, in the main, correct. As many of them are copied from other authors, their accuracy will almost necessarily vary according to that of the respective authorities. Many of the figures are taken from Packard's Guide, and many of those figures were prepared originally for the American Naturalist. I do not know who was the draughtsman, nor how correct they generally are, as I have never examined them in detail. But one of them which I have had occasion to examine recently, namely, that of *Hypoderma bovis*, on page 404, and which you have copied in Plate VIII, 21, is little other than a caricature, as you will see by comparing it with the original, or with Westwood's Figure 3, Plate XIX of Walker's British Diptera, or with your own original figure of the text and variety (VI, 37). * * *

And again, October 15, 1873:

I have referred in several of my letters to the desirability of having a larger number of copies of your work on Diptera struck off than you contemplated. The idea occurs to me that after 50 copies have been printed at yourown expense, an arrangement might be made with the Naturalists' Company to print 1,000 or more additional copies at their expense on shares, they to have a part, perhaps a half, arising from their sale.

I do not know but that it is your intention to have the work stereotyped, so that you can have additional copies struck off hereafter *ad libitum*. If so, all right. But, as I have before said, I can not bear the idea of having all the preparatory labor expended for so small a number of copies. Your work is of a popular and practical character. It gives in a condensed form the greater part of what is known respecting the Diptera, with the additional advantage of being copiously illustrated by figures. The leading idea and aim of the work is that of popular distribution. The 50 copies will of course accomplish nothing of this.

The manuscript was now sent to the publishers of the American Naturalist, in Salem, for an estimate of the cost of printing. In December Mr. Glover learned that Baron Osten Sacken had returned to America, and at once wrote to him as one of his earliest friends in science, and one whose valuable assistance in his dipterological studies he always gratefully acknowledged, asking his advice in the matter. The following is an extract from his letter:

I have just finished and sent to the printing establishment of Putnam & Co., to find out what would be the expense of printing, which, if you approve, I shall do at my own expense, and publish only 50 copies for gratuitous distribution to entomological societies, agricultural colleges, etc. Now, mistrusting my own knowledge on the subject, I fear I may have made some errors, which, taken at the present time, before printing is commenced, may readily be corrected, but which if suffered to appear in print would only lead to future mistakes in nomenclature, etc. I would esteem it a personal favor if you would look the work over and make any corrections you see fit, with your name attached, or without, as you wish. All I want is to get the work out as perfect as I can, and I am willing to bear the whole expense for the sake of diffusing knowledge to those who wish to learn, and have at present no figures to go by. I sent the work to Dr. Le Baron and to Mr. Uhler, who have urged me to have the work published, and, not knowing that you would ever again visit America, I sent the work with all its imperfections on its head to Messrs. Putnam & Co., to put the work through as quickly as possible, as soon as they receive the manuscript from you.

The letter closes with apologies for troubling him, and with the remark that "the work was commenced *entirely at your suggestion*." The italics are Mr. Glover's.

In a letter written the first week in January, 1874, he informs Baron Osten-Sacken that he has directed Putnam & Co. to forward the work and says:

You will find in looking over it (the MS.) that I have enlarged my plan so as to illustrate as much of the subject as I could—from foreign specimens when I was unable to procure native. Shall print 250 copies, if you think it worth the trouble; if not, 50 copies are all that I shall distribute.

Mr. Glover was hardly prepared for the reply to the above which was returned a few weeks later; and though it was received in the same kindly spirit with which it was written, it hurt him cruelly and very nearly caused him to abandon the idea of publication altogether. Baron Osten-Sacken told him frankly that the work was too unequal and too unfinished; that entomology in the United States had made great progress in the last twelve years; that the plan of publication which was suitable in 1862 would appear antiquated in 1874; and finally that such a publication would be open to criticism and financially a dead loss.

A few weeks later Osten-Sacken wrote a second letter, which is appended:

CAMBRIDGE, MASS., *March* 6, 1874.

MY DEAR GLOVER: You probably know that I have had some correspondence with Mr. Le Baron respecting your intended publication. I was very sorry to hear from him that you took my letters so much to heart and that you felt discouraged in consequence. The result of my correspondence with Mr. Le Baron was that we came to a perfect understanding as to the main points at issue. We both think that the publication of your plates (with the scientific names appended), in the shape of one or two volumes, would be very acceptable to the public at large. The letter-press, if any, should consist, in my opinion, of the general introduction only to the orders and families, with references, at the end of each family, to the figures belonging to it. But if I were you I would publish the plates at once, without waiting for the letter-press, and give the latter at leisure afterwards. In other words, your work should be for the public at large and not for the few and for the learned societies. As such it will fill a want in the American literature. I even confess that on this point I have somewhat modified my opinion since my last letter, and as well named collections are a rarity your book will, to a certain extent, supply their place. But do not issue each order as a separate work, as the people do not know much about the division of orders yet, and as, issued in this form, the work assumes at once a learned appearance which it should not have. The title should bear the word *Insects*, and not *Coleoptera*, *Orthoptera*, etc., which learned terms upon a title page act as a bugbear to the unscientific.

Believe me always, very truly, yours,

R. OSTEN-SACKEN.

Under date April 10, 1874, Mr. Glover replied as follows:

Should have acknowledged your letter immediately, but was confined to my bed for some days by an attack of bilious intermittent fever. When I read your first letter I felt so much discouraged that if I had had the manuscript in my possession I should have burned it with pleasure and forsworn entomology forever. Indeed I have scarcely opened the book again since it came back from Putnam's. I intended then to publish 50 copies for gratuitous distribution among entomologists and my personal friends, and had saved up the money to pay for its publication; but I was so much disgusted with my own work that I invested in another manner, and *should* I ever publish the plates with merely their names, as you suggest in your second letter, I shall have now to wait until I can save up money to do so. At present, however, I intend to follow your advice and publish the plates as soon as I can with no text, excepting the names and a short introduction, but shall have to refer to your catalogue, as there is no other. I am busy revising and correcting names, notes, and figures of my Orthoptera, and have etched from additional plates from Thomas's new species collected by Hayden and Wheeler. As soon as this is done I shall again commence with the Diptera and prepare the names for publication. Mr. Uhler is assisting me with the Hemiptera, and I intend to figure all the species I can procure during the coming summer.

Remembering the main facts of this circumstance, but not wishing to trust to memory in stating the matter, I have referred to Baron Osten Sacken, who kindly places such portions of the original correspondence before me as are important, together with an explanation, from which the following extracts are taken:

I made the acquaintance of Mr. Glover while I lived in Washington as secretary of the legation of Russia. It was somewhere between 1856 and 1860 [Mr. Glover first met Baron Osten-Sacken in December, 1857.—C. R. D.]. At that time, except Le

Conte and Asa Fitch, there were hardly any working entomologists in the United States; Harris had died a few years earlier. As early as these times Glover was preparing his copper-plates as a record of his collections and observations. I hoped he would issue a volume with plates representing the most common insects, which, *at that time*, would have been very useful in acquainting the public with the principal forms and in starting the subject. But years went by. I left Washington in 1862, and it was only in 1874 that Glover wrote me to ask for my opinion about the publication of his work. * * * However, I had occasion to ascertain afterwards that Glover had fully appreciated my frankness and my kind intention. I am glad that you have undertaken to write a memorial of this amiable and worthy man and sincere lover of nature.

In consequence of the circumstances herein narrated, Mr. Glover modified largely his previous ideas regarding the publication of the Diptera. He decided upon a small edition of 50 copies, and chose for the volume the modest title "Manuscript Notes from my Journal, or Illustrations of Insects," and, to carry out the idea more fully, had it printed by lithographic transfer upon stone from his own handwriting.

Apropos of this lithographic fac-simile printing, a characteristic anecdote may be related. As may be inferred his printing bill was considerable. The process necessitated making, with his own hand, a careful copy of each page in transfer ink, and as the steps which followed were purely mechanical he argued that with press and appliances he could easily do the work himself. Making inquiry he learned of a small portable contrivance for the purpose, arranged with a cylindrical stone and which could be obtained at a comparatively low price—less than $100, I think. So the little printing establishment was purchased and set up in his office in the Department. A very nice page of copy was prepared after everything had been arranged to his satisfaction, directions were duly followed as to the transfer process, ink applied plentifully, and an impression taken.

The professor's face was a study as he took off this first sheet. Not half of the written words appeared on the page, the transferring of the copy not having taken from the stone. Then the printing ink had stuck to the stone in places where the space should have been left white, and altogether it was a very unsatisfactory beginning. Impression after impression was taken with no better success; and then it was decided that insufficient care had been exercised in making the transfer of the original. The next point was to clean the stone. The directions indicated that the cylinder should be placed in a concave appliance, of a material resembling fire-brick, which accompanied the press, and the crank turned until the ink upon its surface had all been removed. Mr. Glover adjusted the stone, grasped the crank, and ground away until patience was very nearly exhausted, when he called in a colored messenger to help him finish the work. Other trials followed, during which the amateur printer lost all patience, and after keeping the contrivance a week or two he prevailed upon the agent to take it back at a large discount from the original cost and a professional lithographer was again employed to do his printing.

In 1876 he brought out the edition of Hemiptera previously referred to, which was uniform with that of the Diptera, and distributed the 50 copies published to very nearly the same persons and institutions to which the former volumes had been sent. The lists of the recipients are preserved with the copies of the two works given to the National Museum.

In all these years of publication he was adding to his plates, to the text of his Coleoptera, Lepidoptera, and Diptera, and began compilations of similar material from original and outside sources in other orders, including the "Arachnidæ, Crustacea and Annilida, Entozoa, Helmintha," etc. These later volumes, both "rough notes" and "prepared notes," are in the form of scrap-books, made from old public documents, octavo size, and are preserved in the National Museum.* But he gave up further publication, and now devoted a considerable portion of his time to the reproduction, by lithographic fac-simile, of the names to accompany the entire series of plates. These slips of names were prepared and printed for every order excepting the Lepidoptera, including the work on cotton insects; and had his health remained unimpaired he would have finished the names for the set of Lepidoptera also.

In 1878 he issued his last publication, if publication it can be called, an edition of 12 copies of his entire set of 273 plates† with a type-printed

* In addition to his working set of plates, formerly in five quarto volumes, and his published works, complete, the material deposited in the National Museum (before the purchase of his plates was effected) was as follows:

Manuscript notes upon the Coleoptera, Lepidoptera, and Diptera, with alphabetical list of plants or substances injured or destroyed, completed, and systematically arranged (in quarto blank-books).

Hymenoptera, notes, etc., similar to Coleoptera and Lepidoptera, but not completely arranged or systematized, "September, 1862."

The same, "rough notes" and various scraps pasted into old public documents.

Orthoptera, "prepared notes," in three volumes (old public documents).

Hemiptera and Heteroptera, rough notes, three volumes (old public documents).

Neuroptera "rough notes," one volume (old public document).

Cotton insects, plates and clippings from Patent Office Agricultural Reports, and some notes, in a blank scrap-book. Arachnida, etc., and Entozoa, etc., as above, one volume each in old public documents. There is also one volume of original figures, and the volume of the complete work, uncolored, which was presented to Professor Baird by the author, and a few other duplicates.

Not having at hand the original list made by me when the transfer was effected, with Professor Baird's receipt, as the writer acted for Mr. Glover in the matter, the above list was made up while examining the manuscripts in Washington recently (October, 1887).

† The complete set of illustrations comprises 273 quarto plates with 6,179 figures, engraved on copper, covering the following subjects:

	Plates.	Figures.		Plates.	Figures.
Lepidoptera	138	2,634	Hymenoptera	10	346
Coleoptera	49	1,627	Orthoptera	18	281
Diptera	13	520	Neuroptera	7	92
Hemiptera	16	464	Cotton and its insects	22	215

title-page, a few introductory pages of classification, and catalogues of species with references accompanying each order. The slips of names (save the Lepidoptera) were pasted upon each plate just under the figures, the page being of quarto size. Of these 12 copies, which were of course uncolored, 5 were sent to Europe, and 5 distributed here. Two other copies were sold with his library afterwards. Several copies, in the hands of individuals or institutions, were later on ordered to be colored, the writer having had the work done from Mr. Glover's originals, by a competent colorist. A list of institutions and individuals to whom these sets were sent was made by me at the time of the distribution, but can not now be produced. One other formal publication, issued in 1877, should be mentioned. I refer to the compilation of references to the insects treated in his own and other reports, issued by the United States Department of Agriculture and by the Patent Office, to date of publication. It contains also a list of animal and vegetable substances injured or destroyed by the insects referred to, the entire volume making 103 pages, printed from stone, upon one side of the sheet, in fac-simile, uniform with his other publications. A few sets of his cotton plates were also distributed, bound up with a type-printed title-page and cover.

While upon the history of Mr. Glover's undertaking, it should be stated that among several plans looking toward the ultimate disposition of the work, in the event of its not being published prior to the author's death, there were two plans, at least, entertained by him in the latter part of the centennial year, in which the United States Government was wholly ignored. The first of these, which considered leaving the work to some institution in England, with means to publish it, was hardly seriously contemplated; for being a work upon American insects exclusively, it was not thought at all likely that it would claim the same interest in England as in America. The other plan did receive consideration to the extent of an inquiry of the authorities of Johns Hopkins University, in Baltimore, as to the acceptance of a trust fund to be left for the purpose of promoting the study of entomology. In response to this inquiry Mr. Glover learned that the consent of the trustees could be obtained by President Gilman to the acceptance of a given sum, to be known as the Glover fund, the donor to specify the manner in which he preferred the income to be spent, as follows: Either in promoting investigation, in publishing plates and texts, or in the delivery of lectures. But the plan was never consummated.

At last came his sudden and prostrating illness, in the spring of 1878, and he retired from active labor of any kind.

Regarding the sale of his plates—in January, 1879, during the third session of the Forty-fifth Congress, Mr. Glover first memorialized that body, proposing to transfer to the Government the entire series, together with the text of his entomological work. A special bill providing for the transfer was not introduced, but the memorial was referred to the Senate Committee on Agriculture. Professor Baird took great interest

in the matter, personally appearing before the committee to explain the nature, value, and importance of the work, as well as the fact that the skillful engravings of the copper plates themselves were the work of the professor's own hand, and had involved most unremitting labor for a period of over twenty years. The committee showed little interest in the subject, however, notwithstanding that the memorial was accompanied by another recommending the purchase of the work, and signed by the prominent entomologists of the country, among whom were the United States entomologist, professors of Yale, Harvard, and other colleges, and members of leading scientific societies. During the first session of the succeeding Congress the matter was again brought to the attention of the Committee on Agriculture, and a letter addressed to Professor Baird from the chief engraver of the Bureau of Engraving and Printing was submitted. In this letter it was stated that any skilled engraver would charge $100 for each of these plates, and if they were engraved by a scientist they were worth more. Senator Davis, of West Virginia, chairman of the committee, suggested that the committee would recommend the purchase at a cost of $7,500; but the committee took no formal action. This was a great disappointment to Professor Glover, who was now anxious that the work should be purchased by the Government, even at a nominal valuation. At the next session the matter was brought to the attention of the House Committee on Agriculture, and the sum of $7,500 for the purchase of the work was included in the sundry civil appropriation bill, and finally passed both houses, Professor Riley using his influence towards its final passage. The money became available soon after, and was paid to Professor Glover early in April ensuing the 4th of March upon which Congress adjourned; but by this time he had become quite infirm. The result was very gratifying to him, though he died in September following.

No formal transfer of the plates was necessary after the purchase, as they were already in the custody of the National Museum, having been deposited there by the writer after consultation with Professor Baird at the time when Mr. Glover was first stricken and unable to act for himself.

As to the value of his work, it gave Mr. Glover great pleasure while living to know that it was appreciated by the late Professor Agassiz and leading scientific men of his day. Speaking of the "collections of drawings," Professor Agassiz attests "their excellence and great importance, both in a scientific and economical point of view," and considered "the publication of his observations, and of the delineations of insects injurious to vegetation as most desirable, and likely to be in the highest degree creditable to the United States Government." During the savant's last visit to Washington, while calling upon Prof. John W. Hoyt to talk of the proposed national university, his opinion was asked as to the sort of work that Professor Glover was doing. Agassiz's reply was: "Magnificent! His services are extremely valuable, and

should he ever have occasion to leave the Department he can have a place in the Museum of Comparative Zoology on his own terms."

Many extracts from the letters of entomologists might be here given, showing the estimation in which the work was held, for Mr. Glover had many friends in the scientific world who knew him only by his labors in this, his chosen field. But one extract will be quoted, however, from a letter written to me by Mr. William H. Edwards, when it was first suggested that the Government should purchase Mr. Glover's plates:

DEAR SIR: I am very glad to hear that an effort is making to secure for the country Professor Glover's copper plates of the insects of the United States and his manuscript relating thereto. These materials are invaluable to us, and should Professor Glover dispose of them in England or elsewhere the loss could never be made good. Being an enthusiastic entomologist, as well as artist, these plates have been to him a labor of love, and he has given to them the better part of a life-time, and executes them with the greatest fidelity. His work on the cotton insects is beyond all praise. I know of nothing comparable to it on the range of entomological illustrated literature, and the plates of this work and notes belonging to them are worth, in my opinion, to the country the full sum that Professor Glover requires for the entire lot of plates and manuscript.

In giving my own estimate of this work I must regard it from the stand-point of view that will show the intention of its author. He never proposed to put it forth as a technical work, or as a learned contribution to science, for the instruction or better information of specialists, advanced students, or entomological investigators already possessing large libraries and collections, but he did propose to make it, *when fully completed*, a work of *reference* for all orders of insects in the popular sense of the term, for all who might be seeking general information upon subjects relating to American entomology. In his conception of the work, as in that of his museum plan, but one idea was aimed at—*utility*. It was a favorite word with Professor Glover, and whether his original intention was a work of 80 plates or 300, or the text of 100 or 1,000 pages, his only thought was to make it so simple and so useful that a farmer with no appreciation of entomological science could consult it as he would a dictionary, and learn something of the subject upon which he desired to inform himself. It was to be, in short, an illustrated encyclopedia of economic entomology, and if it had been finished and published in accordance with the author's design, there would be nothing now in entomological literature like it. It certainly would be wrong to judge it by his gratuitous publications. And no one, after fully understanding the scope and design of the work, and examining the great mass of material which represents the labor of twenty years of Mr. Glover's active life, will deny either its utility or its value for the purpose for which it was intended.

Supposing the work had been published in its entirety, and distributed in the manner Mr. Glover proposed it should be, among agricultural societies, to town libraries, etc.: A farmer of average intelligence, we will say, comes, with an unknown insect in hand, to consult it. It would require very slight entomological knowledge to enable him to refer to the list of food plants to learn how many and what in-

sects lived upon the particular farm crop (or plant) which had been injured. This information obtained, with no knowledge whatever of classification, he would be able, by means of the plates, to find the culprit in a very little time, even if the figures were not sufficiently accurate for the determination of fine specific differences. Having learned the species, or even an allied species, reference from plate to text would put him in possession of the main facts in the history of the insect, time of appearance of different stages of the pest, and when and how to combat it. And if the information given was not sufficient he could make use of the references to other works there quoted.

This is, briefly, the manner in which the work was intended to be used, and, as it contains over 6,000 figures of insects more or less injurious (or beneficial) to American agriculture, I may repeat that nothing like it has ever before been attempted, and that its completion and publication would have served to vastly popularize the science of entomology in the United States. But while its production is a marvel of patience, persistence, and self-sacrificing industry, in the twenty years its author was engaged upon it, he might have so systematized the work of its production—calling others to his assistance to relieve himself of the mere drudgery—and so have organized the plan of publication that it would have been completed and placed in every large library of the land while he was yet entomologist of the Department of Agriculture.

The point has been made that some of Mr. Glover's figures are not altogether accurate, if not in some instances badly drawn. The criticism is sometimes a just one, although in their entirety the drawings will bear favorable comparison with similar entomological illustrations of the times. One point must be admitted, that the earlier plates are much better than the later ones, as will readily be seen by careful comparison. That this is due to *two* causes there can be little doubt: Somewhat impaired, or gradually failing eyesight in the first place (the more positive cause), and less care in the second place, through impatience to keep up with incoming material. The completion of two plates a month, "out of office hours," and in the hours of daylight, with all the work of making the drawings before undertaking the engraving, and coloring six or eight sets of the proofs afterwards, should be regarded as expeditious work for a man sixty years of age. Mr. Glover himself regretted having made certain of the plates (early ones in the Lepidoptera), chiefly taken from Smith and Abbott's Insects of Georgia, and from a few later works. Some of the far western Orthoptera, too, which were figured from alcoholic specimens, and colored from descriptions, or from other figures, and sometimes from notes made by the collector, are not wholly satisfactory, although readily recognizable by those who have seen the insects in life. Fault has likewise been found with his smaller figures, many of which should have been enlarged to show specific differences in a marked degree, natural size being indicated in the usual manner or by a second figure. All very minute species were properly enlarged, and are, therefore, more valuable.

For purposes of ordinary identification in a general work of reference, as this was intended to be, little fault need be found with the major portion of the series. Of course this presupposes that the plates were to be colored, as it was not the author's idea to issue them in any other way In fact the very manner of engraving the figures shows this to be the case. In the plates that were published by him, only half the editions were sent out uncolored, and this only because of the great expense attending coloring so many sets by hand—the distribution being entirely gratuitous.

In these days of cheapened processes for multiplied color reproduction this matter is a serious obstacle in the way of future publication of Mr. Glover's plates by the Government. Even if an edition of the plates should be issued, without the text they do not tell the whole story, and the text is not finished; and in several orders the material is hardly systematized or arranged. The plates, if published alone, with only the names, would possess a certain value even if not colored, and it would be better to publish in this manner than not at all. Regarding the question of coloring, if sets of the entire series were distributed gratuitously by the Government, the recipients could well afford to have them colored afterwards at their own expense from the original set. Through combinations of a number of persons, so that a large contract could be given out, the work could be done possibly at $35 to $40 per set, which would be cheap for such a complete series of illustrations.

In regard to the published volumes which bear Mr. Glover's name, these are valuable from their very scarcity, and from the fact that they are all he has given us in published form, save the reports which have appeared from time to time in Government publications. As works giving a certain amount of information on two or three somewhat neglected orders of insects they are useful; but from the stand-point of scientific worth they are more valuable as series of named plates than as scientific publications—the often fragmentary and incomplete text giving little hint of the author's years of observation and study in the field and vivarium.

As for the name and fame of the author, a published work comprising an entire set of the plates alone is a sufficient monument to his untiring industry, indomitable perseverance and skill, and to his faithful labors through a period of twenty-five years for the advancement of American entomological science. He wished to do more, but through the limit set upon human endurance and existence he fell just a little short of carrying out his great purpose. He did not strive for fame through any contributions to the vast store-house of technical knowledge, or the dry-dust records of closet investigation that he might have made, nor did he ever wish to be considered an authority. But he early realized the difficulties which beset the way of the student of nature, and that other student of practical rural economy, in obtaining a knowledge of the insect forms about them, at a time when there were few books and fewer named collections, and set to work to remedy the matter as far as he was able.

THE GLOVER MUSEUM.

As has been stated in the biographical sketch of Mr. Glover's life, the museum scheme was contemplated many years before it was realized. Indeed its first inception dates back prior to 1850, before he had left his home on the Hudson. Regarding his collection of fruit models he writes in 1866:

> The design is to obtain from each State samples of the various fruits which have been tried and proved; to have them modeled here, retaining one copy to be added to the national collection, and returning duplicates (and matrices), correctly named, to each agricultural society.

Fifteen years before this, in 1851, he made the proposition to the Massachusetts Horticultural Society to do this same thing, and some specimens were furnished, made from fruits sent to Mr. Glover by members of the society. Allusions to "the specimens for the New York State Society," in a letter written at this period, also shows that the idea was a very old one with its author. And all these early attempts at exhibition tended directly towards the museum idea.

The first attempt to fully carry out the scheme was made in 1854, in the single room which at that time constituted the Patent Office Bureau of Agriculture; the fruit models being the chief display. At this period they were his private property, though a year or two later the proposition was made to dispose of them to the Government for $10,000. The precise facts regarding early legislation on the subject can not be given. But in 1858 we learn that Mr. Glover had seen a number of gentlemen, whom he names; that "everything appears favorable;" and "that the bill" will be put on "as an amendment." Then we learn of his showing the fruits to members of Congress, who approved of the idea, and promised to vote for the purchase. Meanwhile he leaves Washington for the field, and while pushing his investigations he learns that the bill has been defeated by "Letcher and Marshall," of Virginia. This characteristic entry follows: "Will remember them for it. Intend to resign in the fall, and offer to South Carolina or Maryland." As a matter of history the bill was passed, though Mr. Glover did not receive the money, through "misappropriation of funds." In 1867, however, the purchase was consummated, the sum of $10,000 being appropriated for the purpose, Hon. J. W. Stokes, then acting Commissioner of Agriculture, having been instrumental in effecting its passage.

To go back again to the year 1856, he makes statements on the subject, in a letter to his cousin, which throws interesting light on the museum scheme. He says:

I ask $10,000 for the whole, with the proviso that I work six years to finish the grand undertaking of modeling all the fruits, esculent roots, etc., of the United States, and label them with the name, synonym, habit, soil, etc., so as to form the nucleus of a grand National Agricultural Museum. How do you like the plan?

The difference to Mr. Glover between selling his fruits in 1856 and in 1867 was, that before the war he would have received this money in gold, whereas he received it in a "depreciated currency;" and, in addition to the fruit models, gave a collection of 600 specimens of birds, which he had subsequently prepared and brought together, at considerable expense of money and time, while at the Maryland Agricultural College. Even while connected with this institution, his labors, still in the line of the practical and utilitarian, were directed towards the acquirement of a collection. Mr. Glover was a skillful taxidermist, and was a capital shot, notwithstanding the peculiarity of his eye-sight; and as he tramped over the adjacent country, cane-gun in hand, using it also as a walking-stick, he doubtless appeared more as a rural gentleman than the enthusiastic naturalist that he was.

In August, 1864, the new museum was founded in the rooms of the recently established Department of Agriculture. At this time the models (some 3,000 in number) and the collection of birds above mentioned constituted the major portion of the cabinet. This was soon augmented by donations, solicited or otherwise, or by occasional purchases, and a mass of material was very soon gotten together representing, in one way or another, nearly every portion of the country. Insects, birds, plants, and botanical specimens, cereal products, fibers, and the products of industrial art and manufacture were all included in the collections, and the museum was fairly established. From this time forward, up to and including the centennial year, its growth was steady and rapid.

Regarding the plan or scheme of arrangement, which was most complete in detail, it is not necessary to go into particulars here, as it is fully described on page 27 of the Annual Report of the Department of Agriculture for the year 1866.

Briefly, the museum was to be embraced in three divisions—a general, State, and economic. The first he was to illustrate by complete series of specimens of each of the various agricultural products from the seed, through all stages of growth and after preparation for human use, up to the highest range of manufacture. In the State division would be shown the classified products of each State and Territory, including minerals, soils, vegetable products, and manufactures; while in the economic division would be displayed the commercial products of the vegetable kingdom from every portion of the world. It was a grand scheme, but too immense to be fully carried out in the cramped quarters assigned

to it, and in the days of ridiculously small appropriations. And here pardon a digression. In one of the biographical sketches of the man, which appeared at the time of his death, it is said that "during his entire service he never asked for special appropriations for the pursuit of investigations in any particular interest." This is true, but while he never "asked" for appropriations—*i. e.*, by persistent personal labor with committeemen—he never lost the opportunity to explain to Congressmen or other visitors of influence the benefits to be derived by American agriculture in the establishment of such a museum in Washington; and he always closed with a tersely-put statement as to the ridiculously small sums of money that were available from the annual appropriations with which to carry on the work. And upon one occasion, some years after the establishment of the museum, he made such an impression upon an enthusiastic committeeman who was visiting the collections that the sum of $3,000 was shortly afterward appropriated for the museum, to be spent under Mr. Glover's special direction. It nearly took his breath away, and, as his assistant, I well remember how hard it was to get him to use all of the money, as any unexpended balance at the end of the fiscal year would be turned back in the Treasury, the reluctant purchase of a microscope *nearly* using up the amount remaining on hand the last of June.

It was natural for him to talk the museum scheme to all who would listen. He believed in his plan, thought over it, worked for its perfection, confidently believing in its ultimately attaining the fullest realization of success. The two rooms in the Patent Office were soon filled to overflowing; and when the designs were being made for the new building to be erected for the Department of Agriculture an exhibition hall, 50 by 100 feet in dimension, was contemplated, which it was thought would be ample for the purpose. This was occupied in the fall of 1868, twelve walnut cases having been provided for the reception of the various collections at that time brought together. But even in the new hall the "plan" was hardly fulfilled in the arrangement. The "State division" was represented by a single case of California products, the other two divisions not being distinctively indicated, the entire museum being at the same time "general" and "economic," as its specific collections were as yet small and very incomplete.

As a man of deep originality and thought may make a wonderful discovery or produce a valuable invention, and yet find himself lacking in that worldly knowledge which would enable him to apply it with the least difficulty to the uses of every-day life, so it was to a certain degree with Mr. Glover in relation to his admirable museum scheme. Stronger as an originator, or an investigator, than as an *organizer*, he lacked in a measure executive ability. He was able to outline and perfect a splendid system, but unable to carry it out save as he might do so through the untiring labor of his own hands. This was the one drawback in the preparation of his great work on entomology; and it showed itself in the

building up of his museum in a marked degree after it had reached a certain point in its growth. The fact may be stated that in carrying out the museum scheme it was not developed beyond this certain point, and the suggestion is offered that the theory of its arrangement may have interested him more than the thing itself; for, with his devotion to his work on entomology, which was an all-absorbing interest at this period, he could not have given his time and thought to both. It was the *illustration* of the conception of the plan, and not the museum as a whole, that was almost daily presented to its visitors.

For example: The California case was always inspected to illustrate the State division and the arrangement of its minerals, its vegetable products, and its manufactures explained. Turning to the collections of fruit in other cases near, the model of the Baldwin apple was invariably exhibited, showing its manner of growth in various sections of the country, thus demonstrating the localities where special fruits thrived best. Stepping to another case, the bluebird was always pointed out, with the distinctive mark upon its perch showing that it was a friend and not a foe to the farmer; and a little box of insect remains from its stomach, by its side, furnished the proof of his statement. Flaxseed in variety was shown in another case, illustrating the "general" museum, together with the fiber in various stages of growth and manipulation to the most delicate linen fabrics, and in the same manner the seed, oil, and oil cake.

The scheme was most complete and admirable, reflecting the greatest credit upon its originator, and if carried out would have made it one of the grandest economic museums in the world. But it would have necessitated a building larger than the entire Department of Agriculture, and the outlay of many thousands of dollars, with the one drawback that in its State division there would have been endless repetition of the same thing, unless somewhat modified. Mr. Glover appreciated this fully, and there was never an attempt, beyond the points of illustration noted, to make it other than an economic museum of agriculture on the simplest possible basis of display. These statements are made to explain in a measure why so valuable and utilitarian a scheme of arrangement was never fully completed.

As an economic museum or "object library" the collections increased, at first slowly, then rapidly, so rapidly in fact that it was difficult to supply case-room as fast as the specimens came in. It literally outgrew the long entertained plan of arrangement, and as Mr. Glover became more and more absorbed in his entomological work he finally threw the greater part of the responsibility of the museum from off his shoulders altogther, his assistants having charge of and carrying on the work in its several branches, while he assumed merely nominal control. By this time the collection of fruit models had been greatly augmented by Prof. William H. Seaman, who had charge of this branch, as well as the microscopic work of the Division, a large series of the

principal vegetables also having been added; while a regularly appointed taxidermist, Mrs. Teresa Drexler, made considerable additions to the collections of birds and poultry. Miss Caroline C. Moulton was museum attendant.

Then the preparations for the Centennial Exhibition of 1876 were inaugurated, the supervision of the work of getting up the museum exhibit devolving upon the assistant entomologist,* who, co-operating afterwards with Professor Baird, was enabled to almost double the collections of the department from foreign exhibits, necessitating the erection of a gallery on each side of the museum hall.

Mr. Glover had by this time so far lost interest in the museum, being now wholly absorbed in his entomological work and its publication, that when the acquisition of this great mass of material necessitated a better classification and arrangement of the museum display the formulation of a new plan of arrangement was left entirely to the writer. The classification which was then devised is published at the end of the entomologist's report in the annual volume for 1877, pages 118 to 148,† in a special report made to Mr. Glover.

It may be stated that the scheme of arrangement set forth in this published classification was closely followed in the reorganization which shortly followed.

The museum was now (1877) at the zenith of its importance and usefulness, and shortly after its decline began. The first calamity which occurred to it was the loss of many of its large and valuable collections gathered at the Centennial, which, for want of a few hundred dollars worth of display bottles and other material suitable for their exhibition, asked for and repeatedly refused, remained stored in the garret above the museum hall. Through the officiousness of the property clerk of the department, appointed by Commissioner Le Duc, or by the Commissioner's order, this mass of material was either sold to a junk dealer or thrown on a rubbish heap, according to its market value at "junk" prices, and thousands of dollars' worth of valuable museum material wasted and destroyed. Then followed Mr. Glover's retirement from active duty, and as the assistant entomologist shortly after resigned, and other changes had occurred in the museum corps, the museum was practically left without care, as no regular curator was appointed for several years. Dr. Vasey was given nominal charge for a time, but his own duties as botanist were sufficient to occupy his whole attention.

The remainder of the story is briefly told. A wooden exhibition building had been erected in one corner of the department grounds for the display of railroad exhibits and other similar exposition displays. More

*See Agricultural Report for 1876, p. 17.

†The entomologist reluctantly incorporated this museum report and classification into his own report, signing his name to the two documents in one to avoid running counter to the whims and absurd prejudices of the gentleman who was then Commissioner of Agriculture. This statement is made in simple justice to the author of the report.

office rooms were needed in the department building than its cramped quarters afforded, and in time the space in the splendid museum hall was encroached upon. The collections thus displaced were removed to the exposition building referred to above, though some, as the fibers and birds and a few of the more valuable economic collections, were transferred to the National Museum, where they are carefully preserved, though as yet not placed on exhibition. As to the remaining portion of the "Glover Museum," it is pretty nearly as is was left ten years ago, save that many of the collections of specimens have suffered from want of care and attention, and that the museum hall is now given over to other uses, for the specimens, those that were worth further preservation, were transferred to the exhibition building mentioned during the winter just passed.

To conclude: The scheme of the museum, as contemplated by Mr. Glover, was original and unique, however some of its special features may have been suggested by European museums, and it is to be regretted that it could not have been perpetuated and preserved in the original space expressly designed for its accommodation, and where its founder and father labored for its establishment and watched so long its growth and development.

And what more remains to be said? The influence of such a man as Mr. Glover is shown to have been has made itself felt, though the ultimate outcome of his schemes for the diffusion of knowledge among his fellow men did not reach the perfect realization that he had dreamed. "I confess I have no idea how one man had the power alone to accomplish so much work in such a superior manner," Prof. Hagen once wrote of him. He could not have accomplished more, for he did that which his hands found to do with all his might while his strength lasted, and then he rested from his labors.

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Mr. Glover's entomological writings are confined almost exclusively to his reports published in the Annuals of the Patent Office, and the United States Department of Agriculture, and the few published works which bear his name. His earliest writings, as far as I have been able to discover, date back to the fall of 1853, and, with one exception, relate to pomological subjects rather than to entomology. He wrote occasionally for the Fishkill Standard, usually in a satirical vein, holding up to ridicule some local abuse, though not, as far as I know, upon entomological subjects. It is also surmised that he wrote a series of articles for The States, published in Washington before the war, in which the shortcomings of a public official were pointedly reviewed. If there were scientific articles written at this period of his life other than his Patent Office reports, with a single exception, I do not know of them, and his personal scrap-book does not reveal them. It is a known fact that he could not be induced to contribute to current literature during the period of his labors in the Department of Agriculture, though he was frequently urged to do so.*

Throwing out, therefore, all titles which are known to represent mere republications from his reports, the record is reduced to the following titles, which, as far as I have been able to learn, are the published articles, works, or writings of Townend Glover.

1. **"Popular Fallacies."** American Agriculturist, November 9, 1853. Signed "G."

   A short article on the many impracticable insect remedies which go the rounds of the agricultural press. year after year, unproven and unchallenged.

   NOTE.—At the same period, and in the same journal, the following general articles were published over the same initial: Planting Shade Trees along Highways and Railroads, Nov. 23, 1853; Pomological Dream, Nov. 30, 1853; and Pomological Realities (on pear culture), Dec. 23, 1853.

2. **Insects Injurious and Beneficial to Agriculture.** Report of the Commissioner of Patents for 1854. Agriculture. p. 59–89. Illust. by six plates engraved on stone by the author.

   A paper on insects injurious to the cotton plant, wheat, and the grape-vine ; and on the plum curculo, codling-moth, and peach-borer, closing with a short account of some of the common species of beneficial insects.

*I find in one of his scrap-books a lengthy communication, clipped from some newspaper unknown to me, which must have been a published official reply to some correspondent of the Department. It is omitted from the bibliography.—C. R. D.

3. **Report on Insects.** Report of the Commissioner of Patents for 1855. Agriculture. p. 64–119. With 48 wood-cut illustrations, from drawings by the author.

   A report on insects frequenting the cotton plant; insects upon the stalk, leaf, terminal shoots, flower, boll, and rotted bolls; insects found in the cotton fields not injurious to the crop, and insects beneficial to cotton. Also contains a report on insects injurious and beneficial to the orange tree—the orange scale.

4. **Paper upon Entomology.** Read before the meeting of the United States Agricultural Society. Dated Jan. 11, 1856. National Intelligencer. Date of publication cannot be given. (Republished in Fishkill Standard.)

5. **On Destroying Injurious Insects.** American Agriculturist, Oct., 1856. Vol. 15. p. 304.

6. **Reports on Orange and Cotton Insects.** Report of the Commissioner of Patents for 1858. Agriculture. p. 256–272.

   Report on insects frequenting the orange trees of Florida, including remarks on the orange tree by D. J. B. (Browne). Also contains report on insects injurious to the cotton plant in Florida. Notes on cut-worms and the cotton-stainer.

7. **The Hang-Worm.** Report of the Commissioner of Patents for 1859. Agriculture. p. 551–554. 1 Figure.

   An answer to a correspondent of the U. S. Patent Office, giving the history of "Oiketicus," (*Thyridopteryx ephemeræformis*).

8. **Report of the Entomologist.** Annual Report of the (U. S.) Commissioner of Agriculture for 1863. p. 561–579.

   Contains notice of the establishment of the Agricultural Museum, and article on the habits of the principal species of Coleoptera injurious to agriculture.

9. **Report of the Entomologist.** Annual Report of the (U. S.) Commissioner of Agriculture for 1864. p. 540–564.

   A short report on the Museum, followed by a description of the habits of principal injurious species of Orthoptera, Neuroptera, Hymenoptera, Lepidoptera, Heteroptera, Homoptera, and Diptera.

10. **Report of the Entomologist.** Annual Report of the (U. S.) Commissioner of Agriculture for 1865. p. 33–45.

    A report on the progress of the Museum, followed by a brief synopsis of habits of birds examined and placed in the Department since the last report.

11. **Entomological Exhibition in Paris.** Annual Report of the Commissioner of Agriculture for 1865. p. 88–102.

    Treats of entomology on pages 88–94, 101–102; the rest is on agricultural museums, botanical gardens, the gardens of acclimation in Paris, and the collection of the Zoological Society of London. Habits of European injurious insects compared with those of related American insects; habits of European beneficial insects; silk culture noticed; grand gold medal awarded to Glover for his work on entomology.

12. **Report of the Entomologist.** Annual Report of the (U. S.) Commissioner of Agriculture for 1866. p. 27–45.

    I. Contains brief statements regarding the insects which have been reported on by the division for the year. II. Contains an economic paper on insects and their uses—chiefly relating to the products of insects, as honey, wax, cochineal, etc.

13. **Injurious to Cotton Plants.** Monthly Reports (U. S.) Department of Agriculture for 1866.

    A series of articles on the most injurious of the cotton insects, as follows (illustrated):

    No. 1. June. p. 239–241.
    No. 2. July. p. 282–285.
    No. 3. Sept. p. 331–335.
    No. 4. Oct. p. 377–378.
    No. 5. Nov. and Dec. p. 421–424.

14. **The same.** In Monthly Report for 1867. No. 6 of the series, January, 1867 p. 21–23.

15. Report of the Entomologist. Annual Report of the (U. S.) Commissioner of Agriculture for 1867. (p. 58–76.) 16 illustrations.

A report on the insects most injurious to agriculture during the year, that had been received by the Entomological Division.

16. The Potato Beetle. Monthly Report Department of Agriculture for January, 1868. p. 22.

17. The Food and Habits of Beetles. Annual Report of the (U. S.) Commissioner of Agriculture for 1868. p. 78–117; and 114 outline illustrations.

Part I. An article on the food and habits of the more common species of Coleoptera. Part II. An alphabetical list of the principal animal and vegetable substances either frequented or injured by beetles, with the names of the beetles frequenting them.

18. Report of the Entomologist. Report of the (U. S.) Commissioner of Agriculture for 1869. p. 60–64.

A very brief report, relating entirely to the Museum of the Department.

19. Report of the Entomologist and Curator of the Museum. Annual Report of the (U. S.) Commissioner of Agriculture for 1870. p. 65–91. 59 illust.

A record of the work of the Entomologist Division for the year, including new facts relating to injurious insects from other sources.

20. Entomological Record. Monthly report of the Department of Agriculture for 1871. p. 332–335.

Notes on the Colorado beetle, the chinch-bug, ravages of grasshoppers, thrips, etc.—[These notes, together with the records published in ensuing monthly reports for several years, were for the most part embodied in the annual reports of the Department, prepared at the time of or after their publication in this form.

21. On the Grape-Vine Hopper. Monthly Report for October, 1871. p. 403.

22. Entomological Record. Monthly Report for November and December, 1871. p. 477.

On twig-girdlers, strawberry insects, etc.

23. Report of the Entomologist and Curator of the Museum. Annual Report of the (U. S.) Commissioner of Agriculture for 1871. p. 69–88. 23 illust.

A record of the principal insects reported on by the Department during the year.

24. Destructive Grasshoppers in California. Monthly Report of the Department of Agriculture for January, 1872. p. 22.

25. The Utah Cricket. Monthly Report, February, 1872. p. 74.

26. The Cabbage Moth. Idem. March and April, 1872. p. 137.

27. A New Grasshopper. Idem. May and June, 1872. p. 215.

28. Entomological Record. Idem. July, 1872. p. 304–307.

29. Entomological Record. Idem. August and September, 1872. p. 366–369.

On peach-tree insects, and misc. insect injuries.

30. Entomological Record. Idem. October, 1872. p. 438–439.

On the army or "snake-worm" insect injuries.

31. Entomological Record. Idem. November and December, 1872. p. 497–499.

On a large grasshopper and insect injuries.

32. Report of the Entomologist and Curator of the Museum. Annual Report Commissioner of Agriculture for 1872. p. 112 138. 26 illustrations.

I. Report on the entomological work of the division for the year, with brief history and habits of the insects recorded. II. A paper entitled "Notes on the Diptera, with the principal remedies in use for injurious insects in this order."

33. **Illustrations | of | North American Entomology.** | (United States and Canada)—by Townend Glover, Washington, D. C. | Orthoptera. | Washington, D. C. | 1872. Large quarto; text, 11 pp. 13 plates with names.

This work, the only one printed from type, contains: An introduction, arrangement of families, notes on food and habits of orthoptera, parasites, list of substances injured by orthoptera, lists of genera and species figured, list of desiderata and errata. 250 copies printed; 50 distributed gratuitously, the remainder of the edition having been destroyed.

34. **A Vindication of the Entomological Division of the U. S. Department of Agriculture.** Private print, 1872. p. 6.

Published in reply to statements made in "The Department of Agriculture, its History and Objects," a pamphlet issued, 1872, by the chief clerk of the Department. Gratuitously distributed.

35. **Entomological Record.** Monthly Report of the Department of Agriculture, for 1873. p. 29–31.

Notes on the apple-twig borer, the rose bug, plum insects, and other insect injuries.

36. **The Tobacco-worm.** Idem. April, 1873. p. 164.

37. **Entomological Record.** Idem. May and June, 1873. p. 237–238. Notes on the apple-twig borer and Colorado beetle.

38. **Entomological Record.** Idem. July, 1873. p. 345–347. Notes on corn insects, the grape-vine root louse, trap-door spider, Colorado beetle, luminous larvæ, etc.

39. **Entomological Record.** Idem. August and September, 1873. p. 426–427. On Paris green, the Phylloxera, etc.

40. **Entomological Record.** Idem. October, 1873. p. 496–497. Notes on grape-vine borers and insect injuries.

41. **Entomological Record.** Idem. November and December, 1873. p. 571–578. Notes on the phyloxera, the Colorado potato beetle, protection against cotton moths, *Xylorycles satyrus*, and insect injuries.

42. **Report of Entomologist and Curator of the Museum.** Report of the U. S. Commissioner of Agriculture for 1873. p. 152, 169. 10 illust.

A brief report on the injurious species of insects reported during the year with conclusions, etc., relative to the use of Paris green and other poisons in combating cotton insects.

43. **Entomological Record.** Monthly report of the U. S. Department of Agriculture, for 1874. p. 43–45.

Notes on the *Phylloxera*, Paris green, the cotton caterpillar, &c.

44. **Entomological Record.** Idem. April and May, 1874. p. 221–222. On luminous beetles, and poke-root as an insecticide.

45. **Entomological Record.** Idem. July, 1874. p. 324–330. On Colorado potato beetle, and notes on insect injuries.

46. **Entomological Record.** Idem. August and September, 1874. p. 373–376. Notes on insect injuries.

47. **Entomological Record.** Idem. October, 1874. pp. 428–431. Experiments with *Phylloxera*, the cotton worm, etc.

48. **The Grape-root Gall-louse.** Idem. November and December, 1874. p. 506–7.

49. **Report of Entomologist and Curator of the Museum.** Report of the United States Commissioner of Agriculture for 1874. p. 122–146. 20 illust.

PART I. A brief report on the Colorado potato beetle and other insects, giving the new facts of the year. PART II. An economic paper on the Orthoptera.

50. Manuscript Notes from my Journal | or | Illustrations of Insects | Native and Foreign | Diptera | or | Two-winged Flies. | Washington, 1874.

Written by Townend Glover. Transferred and printed from stone by Jas. F. Gedney. 4to. pg. III, plates I-XII, pl. A (each with a page of explanation) pg. 120, printed only on one side of the sheet. Only 45 copies printed for gratuitous distribution.)

(*a*) Introduction, p. I–III. (*b*) Figures of about 340 imagos, 160 young, 30 habitations, and numerous details of about 400 species, pl. I-XII. (*c*) Anatomical details of 86 genera pl. A. (*d*) Arrangement of families, p. I. (*e*) Alphabetical list of the families and genera of Diptera mentioned in this work, with synonyms, habitat, food, etc., p. 2–59, (*f*) Alphabetical list of predaceous or parasitic Diptera, the larvæ or perfect flies of which destroy other insects, p. 60–62. (*g*) Alphabetical list of vegetable and animal substances, etc., inhabited, injured, or destroyed by Diptera, p. 63–78. (*h*) Alphabetical list of insects of other orders either destroying Diptera or destroyed by them, p. 79–85. (*i*) Alphabetical list of names of authors, and of authorities quoted, p. 86–89. (*j*) Abbreviations used in this work, p. 90. (*k*) Alphabetical list of some of the genera, etc., of Diptera, with derivation of names, p. 91–93. (*l*) Alphabetical list of the species of Diptera, and other orders, fungi, etc., with derivation of names, p 94–100 (*m*) Supplement. 1. Remedies, p. 101–111. (*n*) Alphabetical list of insects, etc., mentioned in Report on Remedies, p. 112. (*o*) Synoptical tables (of divisions and families), p. 113–118. (*p*) Definition of terms, p. 118. (*q*) Addenda, p. 119–120. (*r*) Notes, p. 120.

51. Recent notes on the Phylloxera, from Foreign Sources. Monthly Report U. S. Department of Agriculture for January, 1875. p. 40.

52. On Beneficial Insects. Idem. April, 1875. p. 175–6.

53. Entomological Record. Idem. May and June, 1875. pp. 221–230. On cutworms; Phylloxera in Austria, the same in France; locusts, etc.

54. Insect Injuries. Idem. July, 1875. p. 307–310.

55. Insect Injuries. Idem. August and September, 1875. p. 367–370.

56. Entomological Record. Idem. October, 1875. pp. 442–445. Notes on the chinch-bug and Colorado beetle.

57. Report of the Entomologist and Curator of the Museum. Report of the (U. S.) Commissioner of Agriculture for 1875. pp. 114–136. 63 illust.

PART I. An Economic paper on the "Heteroptera or Plant Bugs." PART II. Remedies reported to oe serviceable in destroying insects in the Suborder Heteroptera or plant bugs.

58. Insect Injuries. Monthly Report of the U. S. Department of Agriculture, 1876. p. 245.

59. Insect Injuries. Idem. August and September, 1876. p. 333–336.

60. Manuscript Notes from My Journal | or | Illustrations of Insects | Native and Foreign | Order Hemiptera | suborder Heteroptera | or plant-bugs. | Washington, D. C. | 1876.

Written and etched by Townend Glover; transferred and printed from stone by J. C. Entwisle, 1876. (2)+2+10—133 p. (p. 1–57*bis*, p. 58–132), 10 pl. (pl. 1-9 colored), printed only on one side of the sheet. (Only 53 copies printed, for gratuitous distribution.) Title; copyright. (*a*) Introduction, p. 1-2. (*b*) About 325 figures of about 257 imagos, 19 young and numerous anotomical details of about 240 species, pl. 1–10, each pl. with a p. of explanatory text. (*c*) Arrangement of families, etc., of the Heteroptera, or plant-bugs (Burmeister's arrangement (1835), p. 1–6, p. 16; Westwood's (1840), p. 7–9, p. 16; Amyot and Serville's (1843), p. 9–12, p. 16; Douglas and Scott's (1861–1865), p. 12–15, p. 17), p. 1–17. (*d*) Alphabetical list of the families and genera of Heteroptera mentioned in this work with synonyms, habits, food, habitat, etc. (includes, with others, all the species mentioned in Say's works, with the names of the genera to which they have more recently been removed), p. 18–73. (*e*) Alphabetical list of predaceous or parasitic Heteroptera, the larvæ, pupæ, or perfect insects of which destroy other insects, p. 74, 75. (*f*) Alphabetical list of vegetable and animal substances frequented, injured, or destroyed by Heteroptera, p. 76–85. (*g*) Alphabetical list of insects of other

orders either destroying Heteroptera or destroyed by them, p. 86, 87. (*h*) Alphabetical list of the names of the authors and of authorities or societies, etc., referred to in this work, p 88–91. (*i*) Abbreviations, etc., used in this work (with a diagram of three French inches divided into lines), p. 92. (*j*) Remedies reported to be serviceable in destroying insects of the suborder Heteroptera or plant-bugs, p. 93–96. (*k*) Alphabetical list of (some principal) sections, families, and genera of the Hemiptera, Heteroptera, with derivation of names, etc.. etc. (compiled from the works of various authors, omitting many synonyms, and referring the genera to the families of Amyot and Serville's classification), p. 97, 112. (*l*) Alphabetical list of species, of the Hemiptera, Heteroptera (with translation of the names and referring the synonyms to their proper genera), p. 112–118. (*m*) Genera as arranged in the entomological cabinet of the Museum of the Department of Agriculture, Washington, D. C., 1876 (with reference to the pages on which the genera are mentioned in Amyot & Serville's Histoire naturelle des Hemipteres, Paris, 1843), p. 119–123. (*n*) Extracts from the list of Hemiptera, of the region west of the Mississippi, including those collected by the Hayden explorations of 1873, by P. R. Uhler, Baltimore, Md., Washington, D. C., January 1876 (giving Uhler's arrangement of the "families, &c.," and referring to the pages on which the genera are mentioned in that work, (see Rec. No. 568), p. 124–137. (*o*) Notes of the habits of the Heteropterous insects, with the latest changes in the nomenclature, position, and classification of the various families, subfamilies, genera, and species (taken from Uhler's List (see Rec. No. 568), and referring to the pages of that list), p. 128–131. (*p*) Errata and addenda, p. 132. (*q*) List of (45) societies and individuals to whom a copy of this work has been sent (1876), p. 132.

61. Report of the Entomologist and Curator of the Museum. Report of the U. S. Commissioner of Agriculture for 1876. pp. 17–46. Illust., p. 59.

I. Contains report of Chas. R. Dodge on the Museum exhibit at the Centennial Exhibition. II. Economic paper by the Entomologist on the Homoptera,

62. Report of the Entomologist and Curator of the Museum. Report of the Commissioner of Agriculture for 1877, pp. 89–148, Plates V, Figs. 100, reproduced from the authors' engravings of Hymenoptera.

I. Economic paper on the Hymenoptera in relation to American Agriculture; II. A report on the Museum Division, with a systematic classification for economic museums, prepared by Charles R. Dodge.

63 Manuscript Notes from my Journal | or | Entomological Index | to names, &c., | in | Agricultural Reports | with list of | Vegetable and Animal Substances Injured or Destroyed by Insects | Washington, D. C., | 1877. 103 pages, quarto. Written and etched by Townend Glover, and printed on stone.

50 copies were printed for gratuitous distribution.

64. Illustrations | of | North American | Entomology | in the orders of | Coleoptera, Orthoptera, Neuroptera, Hymenoptera, Lepedoptera | Homoptera and Diptera | By Townend Glover | Washington, D. C. | 1878.

The entire set of 273 plates, with names of species on each plate in every order but Lepedoptera. Contains, also, arrangement of families, compiled from various authors, in each order, with alphabetical lists of families and alphabetical lists of species, with references to plate and figure Twelve copies only were printed for gratuitous distribution, chiefly to institutions in this country and in Europe. The series also contained the 22 plates of cotton insects though not so stated on the title page. This was Mr. Glover's last work, issued only a short time before he was forced to cease his labors and to end his active connection with the Department of Agriculture.

A REPRODUCTION OF AN EARLY PLATE ON STONE.